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Investigation of Environmental Ethics Approaches of Students in Terms of Various Variables

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ABSTRACT The objective of this paper was to study in terms of various variables, which of the following environmental ethics approaches do high school students have namely, anthropocentric, ecocentric, eco-feminism and religious environment ethics. The study group comprised a total of 386 students from the Science and Anatolian high schools during the academic year 2013-2014. A convenience sampling method was used in the paper. The Kruskal Wallis H, Mann-Whitney test, ANOVA statistics and t-test were applied to the data. At the end of the paper, it was seen that the students had religious ethics approach the most and there was no significant difference between the variables which were used for analysis and the students' ethical attitudes towards the environment.

INTRODUCTION

Citizenship education is closely related to environmental education, and this relationship helps students understand how their actions can affect the environment and social wellbeing. Environmental education can provide a tool for responsible citizenship in accordance with the use of various teaching models and rules used in the field of education (Ajiboye and Silo 2008). According to Gezer et al. (2006), environmental education will allow developing environmental awareness, feelings of responsibility and sensitivity for the environment, positive attitudes and behaviors toward the environment, and enable people to live in a healthy and safe environment. Unal and Dimiski (1999) stated that a serious study on developing an environmental program should be undertaken in Turkey and teacher education should also be incorporated into that study. Climate change resulting from increased carbon dioxide, ozone layer depletion, and extinction of animal and plant species, nuclear contamination, DDT pollution, oil pollution at seas and mercury pollution can be considered among today's worldwide environmental problems. In addition, acid rain, desertification, toxic wastes are also among other environmental issues at an international level. Ecologists rely on ecological information and the people's ability to take lessons from their mistakes and learn in the solution of these problems (Kislalioglu and Berkes 2005).

During the fourth Environment Council held by the Ministry of Environment (2001) in Izmir in 2000, it was indicated that environmental education is inadequate in Turkey and it was decided to develop activities for learning by experience and practice so that pre-school children gain positive attitudes and behaviors towards the environment and have love for nature, an ecological point of view and ecosystem logic at all levels of formal education. Environmental education should be included at all levels of education, including family education, and in-service training, turned into lifelong education and training programs should be developed. Master's and doctoral level programs on environmental education should also be incorporated into university programs (State Planning Organization [SPO] 2006). If children learn about the environment, their values and attitudes toward the environment will be positively influenced. As children improve their environmental behaviors, their level of knowledge and views about the environment will change. Thus, the children's environmental awareness as well as their values regarding it or their attitudes toward the environment will be shaped. In this respect, development of environmental awareness in children will be enabled by delivery of information about the environment, making children embrace the environment, provision of materials about the environment and development of encouraging actions by educators (Simsekli 2001). According to Al-Rabaani and Al-Mekhlafi (2009), young people become more aware by learning about environmental dangers facing the planet, environmental degradation and by becoming more conscious of their roles in the face of such threats.

The approaches of "ethics" and "educational" sciences are important in the solution of such global-scale environmental problems. This is because the value of the principles in the solution of problems will become meaningful with ethical approaches, and be effective in shaping educational practices. Development of a variety of views on the environment has occurred by creation of approaches from various perspectives to environmental problems. These views also developed some ethical understandings within themselves (Uygun 2006).

One of these approaches, anthropocentric approach advocates that environmental protection is meant to protect people and natural resources shouldn't be consumed too much so that the quality of life of people in the future does not decline (Dunlap and Van Liere 1978; Callicott and Frodeman 2009).

The biocentric approach argues that all living things are equal (Varner 1998) and other living things other than humans are also of value and refers to people's responsibilities toward these creatures and the rights of these creatures (Ertan 2004).

The ecocentric approach values all living and non-living things, and this value is wholly ascribed to nature (Ertan 2004). People protect the nature without looking out for their own interests and act in this respect (Dunlap and Van Liere 1978).

Along with these three general approaches, various sub opinions including animal welfare ethics, deep ecology, land ethics, religious environment ethics, sustainable development ethics, post-modern environmental ethics, eco-feminism (Rolston 2003), ethics of respect for nature, earth ethics, and ecological ethics (Mahmutoglu 2009), which cover these three approaches, are also discussed in environmental ethics approaches. Finally, futurist approach also emerged as a new approach. DesJardins (2006) suggests that there are important similarities between social ecology and eco-feminism, however, makes a distinction between them noting that eco-feminism's descriptions about social problems and suggestions for social change differ from those of social ecology. According to this view, patriarchal thinking lies behind oppression of women and nature so the nature-human relationship should be very healthy so that women achieve equality of opportunity (Scarce 1990; Tamkoc 1996). According to deep ecology approach, man and any other form of life other than man carry a value in their own way because of their existence. People have no right to reduce the richness and diversity of nature. People can benefit from nature only to meet their requirements provided they do not go too far while doing that (Kiliç 2013). According to religious environmental ethics, man respects what God has created, and people are responsible for the natural world because nature was entrusted to people by God (Des Jardins 2006).

Ethical approaches used to teach values and the effect of educational practices developed under these approaches made disciplines of ethics and education complement each other. Educational institutions are important in creating awareness for the environment and developing knowledge, attitudes and behaviors in individuals (Uygun 2006). Increased awareness about environmental problems is part of environmental education (Sheppard 2006). In line with this, the common points between views, which have emerged about environmental ethics may include minimization of environmental issues, determination of moral aspects of human-nature relationship and that man develops a sense of responsibility toward the environment and other things (Onkal and Yaganak 2005).

In this context, environmental ethics studies moral relations between man and his natural environment, while the environmental ethics theory has to identify the rules governing these relations, and show which people and what people have responsibilities and presents justification for these (Des Jardins 2006).

Therefore, environmental ethics in guides in identifying attitudes and behaviors, which will be effective in developing a sense of responsibility toward the environment in students and reducing environmental problems.

As a result of the literature research, particularly studies on students' attitudes towards environmental problems (Al-Rabaani and Al-Mekhlafi 2009; Gurbuzoglu and Gozum 2011), studies on developing a scale regarding environmental ethics can be grouped under the following factors: man, nature, the environment, faith-based, repulsive attitudes, individualistic and deep ecology (Gagnon and Barton 1994; Dunlap et al. 2000; Ronald 2002; Erten 2007), and practical studies on environmental ethics referring to the balance between man and nature, which investigated the effects of intrinsic moti-

vation on ethical approaches and the events causing damage to the environment in terms of ethical approaches, realized teaching environmental ethics using cooperative approach, determined which understanding of ethics the students from various cultures had (Horwitz 2001; Kortenkamp and Moore 2001; Aoyagi-Usui et al. 2003; Shapiro and Takacs 2006; Erten 2008; Kortenkamp and Moore 2009; Erten and Aydogdu 2011).

The objective of this paper was to study in terms of various variables which of the following environmental ethics approaches do high school students have, namely anthropocentric, ecocentric, eco-feminism and religious environmental ethics. For this purpose, answers were sought for the following sub-problems:

i. Which environmental ethics approach do the students have the most?
ii. Do environmental ethics approaches the students have vary by gender, type of school, grade, place of residence where they stayed the longest, taking or not taking the environment course, following or not following the news about the environment, engaging in or not engaging in animal raising or cultivation and monthly income of the family?

MATERIAL AND METHODS

A general screening model, included in screening model, was used in this paper. It is often used to describe behaviors, beliefs, thoughts and other types of information in research on education (McMillan and Schumacher 2010).

Universe and Sample

The study universe composed of all Science and Anatolian high schools in Kars province and the study sample was a total of 386 students from 9th, 10th and 11th grades at Science and Anatolian high schools in the city center of Kars province during the academic year 2013-2014. The number of students in the target universe was 3965. The sample size (Buyukozturk et al. 2011) appropriate for this universe was determined as 351 people for a significance level of .05 and confidence level of ninety-five percent. The sample size was taken as 386 people against the possibility that the students fail to return with respect to the scale given. In view of the curriculum of Ministry of National Education [MNE] (2013) for secondary school biology course, it was seen that the subjects about the environment begin to be introduced at 9th grade in these schools. So considering that students at 9th, 10th and 11th grades of Science and Anatolian high schools have adequate knowledge about the environment, these students were included in the sample. The students in 12th grade would take the university entrance exam so it was thought that they might fail to show the performance demanded in the sampling due to their excitement and state of mind so they were excluded from the sampling. Of 386 students in the sample, 132 studied in the 9th grade, 138 in 10th grade and 116 in 11th grade. Of these 386 students, 216 were female and 170 were male. Convenience sampling method was used in the paper. In this method, the respondents are identified on the basis of volunteering (McMillian 2000).

Data Collection Tool

The "Ethical attitudes toward the environment scale" developed by Gurbuzoglu Yalmanci (2015) was employed in the paper. In order to ensure content validity, the items in the pool created at the beginning of the scale were shown to experts from the following disciplines: 3 experts on biology, 2 experts on assessment and evaluation and 1 expert on Turkish Language and Literature. Correlations of item-total score were calculated in order to ensure internal consistency of the scale. Kaiser Meyer Olkin (KMO) value of the scale was 0.837, and result of Bartlett's test of sphere city was also found to be significant (χ^2= 11920.99; p<.05). This scale consisted of a total of 33 items including 4 factors (Ecofeminist environmental ethics, ecocentric environmental ethics, anthropocentric ethics and religious ethics). Calculated total contribution of these four factors to variance was 47.57 percent. In Cronbach's Alpha reliability analysis, Cronbach's Alpha coefficients for first, second, third and fourth factors were .98, .72, .82, .80, respectively and calculated Cronbach's Alpha coefficient of the whole scale was .87. Confirmatory factor analysis was also conducted on the scale and the analysis supported a 4-factor construct of the scale. The factor design of the scale is shown in Table 1.

Table 1: Factor design of ethical attitudes toward the environment scale

Item No.	*F1*	*F2*	*F3*	*F4*	*Common Factor Variance (h^2)*
s58	.958	.172	.059	.110	.962
s55	.955	.181	.054	.113	.961
s54	.948	.177	.049	.101	.943
s65	.942	.160	.071	.109	.930
s53	.914	.054	.028	.060	.842
s59	.913	.062	.052	.075	.846
s52	.909	.056	.047	.046	.833
s62	.828	.157	.109	.097	.732
s25	.059	.579	.065	.015	.343
s10	-.008	.545	.211	.018	.342
s18	-.030	.541	.203	.046	.337
s24	-.051	.484	.058	-.030	.241
s50	.139	.462	-.314	.130	.349
s31	.046	.450	.097	.099	.224
s29	.054	.445	.101	.090	.219
s46	.090	.440	-.272	.078	.282
s64	.056	.430	.015	.287	.271
s13	.041	.419	.065	.000	.182
s23	.084	.398	-.018	.003	.166
s28	.034	.369	.011	-.010	.137
s51	.185	.368	-.059	.006	.173
s47	.161	.364	.058	.154	.186
s38	-.037	.357	.100	.115	.152
s14	.179	.350	-.012	.036	.156
s21	.155	.344	.025	.061	.147
s45	.124	.333	.162	.016	.153
s7	.065	.135	.866	.117	.787
s5	.090	.151	.856	.075	.770
s4	.068	.098	.814	.027	.677
s2	.156	.237	.482	.071	.318
s70	.122	.170	.069	.805	.696
s69	.156	.068	.074	.785	.651
s68	.044	.088	-.020	.779	.617
s67	.113	.072	.097	.724	.551

Data Analysis

The Kruskal Wallis H, Mann-Whitney test, ANOVA statistics and t -test were applied to identify the effects of the students' ethical attitudes towards the environment by gender, grade, type of school they go to, the place of residence where they stayed the longest, taking or not taking the environment course, engaging in or not engaging in animal raising or cultivation, and monthly income of the family. Normal distribution test was performed before applying these tests.

RESULTS

The findings about environmental ethics approaches of the respondents are presented in this section.

The mean values of environmental ethics approaches which the students have are given in Table 2.

According to Table 2, the ethical approach which the students have the most is religious ethics. According to the developed scale, this factor includes 4 items. In view of item average, it appears that religious ethics approach (X=4.42) is higher than other approaches, in other words, the mean value of this factor approached the maximum value, which can be obtained from this factor. This approach was followed by anthropocentric ethics (X=3.63), ecocentric ethics (X=3.03) and ecofeminism environmental ethics approach.

Findings about significant difference between the students' environmental ethics approaches were studied based on certain variables, namely gender, type of school, grade, the place of residence where they stayed the longest, taking or not taking the environment course, following or not following the news about the environment, engaging in or not engaging in animal raising or cultivation, and monthly income of the family

The t- test about whether there is any difference between the students' environmental ethics approaches and gender is given in Table 3.

As seen in Table 3, there is no significant difference by environmental ethics approaches between female and male students for the total of the scale ($t_{(32.48)}$ =1.09, p>.05). However, when the factors were examined individually, a significant difference was found between female and male students for each ethics approach (p<.05). The mean values of female students for ecofem-

Table 2: Mean values of environmental ethics approaches which the students have

Environmental ethics approaches	*N*	*X*	*s*	*Minimum*	*Maximum*	*X/K*
Ecofeminism (8 items)	386	23.83	6.29	8.00	38.00	2.97
Ecocentric ethics (17 items)	386	51.55	6.04	39.00	77.00	3.03
Anthropocentric ethics (4 items)	386	14.54	3.00	7.00	20.00	3.63
Religious ethics (4 items)	386	17.71	3.24	4.00	20.00	4.42
Total	386	107.64	10.70	72.00	145.00	

Table 3: t-test about whether there is any difference between the students' environmental ethics approaches and gender

Ethics approaches	*Gender*	*N*	*X*	*t*	*p*
Ecofeminism	Female	216	25.48	6.07	.00
	Male	170	21.73		
Ecocentric	Female	216	50.31	4.70	.00
Ethics	Male	170	53.14		
Anthropocentric	Female	216	14.18	2.64	.00
Ethics	Male	170	14.99		
Religious Ethics	Female	216	18.19	3.35	.00
	Male	170	17.10		
Total	Female	216	8.50	1.09	.27
	Male	170	12.96		

inism and religious ethics approaches were higher than those of male students, whereas mean values of male students were higher than those of female students for ecocentric and anthropocentric ethics approaches.

The t- test about whether there is any difference between the students' environmental ethics approaches and type of school is given in Table 4.

As seen in Table 4, there is no significant difference between the students' environmental ethics approaches and type of school for the total of scale ($t_{(.10)}$ =1.52, p>.05). The same findings also apply to sub-factors of the scale. The students' environmental ethics approaches did not vary by type of school.

ANOVA test about whether there is any difference between the students' environmental ethics approaches and grade is given in Table 5.

According to Table 5, there is no significant difference between the scores from the scale and the students' grade levels (F (2.383) =1.186; P>.05). The students' environmental ethics approaches did not show any significant difference by grade level.

Kruskal Wallis H test about whether there is any difference between the students' environmental ethics approaches and place of residence where they stayed the longest is given in Table 6.

According to Table 6, there is no significant difference between the scores from the scale and the students' place of residence where they stayed the longest (χ^2=5.01; p>.05). The students' environmental ethics approaches did not show any significant difference by place of residence where they stayed the longest.

T-test about whether there is any difference between the students' environmental ethics approaches and taking or not taking the environment course is given in Table 7.

As seen in Table 7, there is no significant difference between the students' environmental ethics approaches and them taking or not taking the environment course for the total of scale

Table 4: t-test about whether there is any difference between the students' environmental ethics approaches and type of school

Ethics approaches	*Gender*	*N*	*X*	*t*	*p*
Ecofeminism	Science high school	162	23.26	1.50	.13
	Anatolian high school	224	24.24		
Ecocentric Ethics	Science high schoolq	162	51	1.53	.12
	Anatolian high school	224	51.95		
Anthropocentric Ethics	Science high school	162	14.53	.02	.98
	Anatolian high school	224	14.54		
Religious Ethics	Science high school	162	17.86	.76	.44
	Anatolian high school	224	17.60		
Total	Science high school	162	106.67	1.52	.12
	Anatolian high school	224	108.35		

Table 5: ANOVA test about whether there is any difference between the students' environmental ethics approaches and grade

Grade level	*N*	*X*	*SD*	*Sum of squares*	*s*	*Mean of squares*	*F*	*P*
9th grade	132	107	10.02	271.687	2	135.844	1.186	.30
10th grade	138	107.18	12.64	43854.39	383	114.502		
11th grade	116	108.92	8.74	44126.08				

Table 6: Kruskal Wallis H test about whether there is any difference between the students' environmental ethics approaches and place of residence where they stayed the longest

Ethics approaches	*Place of residence*	*N*	*Mean rank*	*sd*	χ^2	*p*
Ecofeminism	City	287	196.77	2	3.85	.14
	District	35	157.97			
	Village	63	195.27			
Ecocentric Ethics	City	287	195.99	2	2.98	.22
	District	35	162.06			
	Village	63	196.59			
Anthropocentric Ethics	City	287	192.66	2	2.48	.28
	District	35	170.41			
	Village	63	207.11			
Religious Ethics	City	287	187.18	2	3.89	.14
	District	35	200.61			
	Village	63	215.26			
Total	City	287	195.72	2	5.01	.08
	District	35	153.63			
	Village	63	202.47			

Table 7: T test about whether there is any difference between the students' environmental ethics approaches and taking or not taking the environment course

Ethics approaches	*Whether the student took the course or not*	*N*	*X*	*t*	*p*
Ecofeminism	Yes	161	23.32	1.34	.17
	No	225	24.19		
Ecocentric Ethics	Yes	161	52.20	1.78	.07
	No	225	51.09		
Anthropocentric Ethics	Yes	161	14.27	1.45	.14
	No	225	14.72		
Religious Ethics	Yes	161	17.39	1.63	.10
	No	225	17.94		
Total	Yes	161	107.20	.68	.49
	No	225	107.96		

($t_{(.00)}$=.68, p>.05). The same finding also applies to sub-factors of the scale. The students' environmental ethics approaches did not vary by taking or not taking the environment course.

Table 8: Mann-Whitney test about whether there is any difference between the students' environmental ethics approaches and following or not following news about the environment

Ethics approaches	*Whether the student follows news about the environment or not*	*N*	*Mean rank*	*Rank total*	*u*	*P*
Ecofeminism	Yes	290	198.69	57620.50	12414.50	.11
	No	96	177.82	17070.50		
Ecocentric Ethics	Yes	290	194.21	56321.50	13713.50	.82
	No	96	191.35	8369.50		
Anthropocentric Ethics	Yes	290	196.48	56980.50	13054.50	.35
	No	96	184.48	17710.50		
Religious Ethics	Yes	290	192.77	55903.50	13708.50	.81
	No	96	195.70	18787.50		
Total	Yes	290	196.72	57049	12986	.32
	No	96	183.77	17642		

Mann-Whitney test about whether there is any difference between the students' environmental ethics approaches and following or not following news about the environment is given in Table 8.

As seen in Table 8, there is no significant difference between the students' environmental ethics approaches and following or not following news about the environment for the total of scale (u=12986, p>.05). The same findings also apply to sub-factors of the scale. The students' environmental ethics approaches did not vary by following or not following news about the environment.

Mann-Whitney test about whether there is any difference between the students' environmental ethics approaches and raising animals or cultivation is given in Table 9.

According to Table 9, there is no significant difference by environmental ethics approaches between students who engaged in raising animals or cultivation and those who did not (u=10203, p>.05) for the total of scale. However, when the factors were examined individually, a significant difference was found for religious ethics approach (p<.05). Mean religious ethics approach of students who engaged in raising animals or cultivation in any part of their lives was found to be higher as compared to those who did not.

ANOVA test about whether there is any difference between the students' environmental ethics approaches and economic income level of the family is given in Table 10.

According to Table 10, there is no significant difference between the scores from the scale and economic income levels of the students' families (F (3.382) =.45; P>.05). The students' environmental ethics approaches did not show any significant difference by economic income level of the family.

DISCUSSION

This paper investigated high school students' ethical attitudes toward the environment in terms of various variables and found that the ethical approach, which the students had the most, was the religious ethics approach. This approach was followed by anthropocentric, eco-

Table 9: Mann-Whitney test about whether there is any difference between the students' environmental ethics approaches and raising living things

Ethics approaches	*Whether the student engaged in raising living things*	*N*	*Mean rank*	*Rank total*	*u*	*P*
Ecofeminism	Yes	321	194.66	62486.50	10059.50	.64
	No	65	187.76	12204.50		
Ecocentric Ethics	Yes	32	191.18	61367.50	9686.50	.36
	No	165	204.98	13323.50		
Anthropocentric Ethics	Yes	32	189.97	60979	9298	.16
	No	165	210.95	13712		
Religious Ethics	Yes	32	200.14	6424.50	8299.50	.00
	No	165	160.68	10444.50		
Total	Yes	32	192.79	61884	10203	.78
	No	165	197.03	12807		

Table 10: ANOVA test about whether there is any difference between the students' environmental ethics approaches and economic income level of the family

Income	*N*	*X*	*SD*	*Sum of squares*	*s*	*Mean of squares*	*F*	*P*
Minimum Wage	71	108.77	10.58	158.65	3	52.88	.45	.71
				43967.42	382	115.09		
1000-2000	117	107.73	10.58	44126.08				
2000-3000	126	107.46	10.60					
3000 and above...	72	106.70	11.30					

centric and eco-feminist environmental ethics approaches. A study by Ozdemir (2012) concluded that the participants recognized weak anthropocentricism and humane ecocentricism to a large extent and stated that they adopted the view of ecological world. Erten and Aydogdu (2011) reported that both Turkish and Azerbaijani student groups had an understanding of anthropocentric ethics, however, stated that Turkish students had ecocentric attitudes to a larger extent.

In other findings of the paper, no significant difference was found between the students' ethical attitudes toward the environment and the following variables: type of school, grade, the place of residence where they stayed the longest, taking or not taking the environment course, following or not following the news about the environment, and economic income level of the family. When an assessment was made in terms of the gender variable, a significant difference was observed between each environmental ethics approach, whereas there was no significant difference in the overall scale. Similarly, when the results were considered in terms of the variable, being or not being engaged in raising living things in any part of the students' lives, no significant difference was found in the overall scale, whereas a significant difference was noted in terms of the religious ethics environmental ethics approach. This is in good agreement with Ozdemir (2012), who concluded that the variables of gender and department had no influence on pre-service teachers' tendencies about the environment. In the study on Turkish and Azerbaijani students, Erten and Aydogdu (2011) concluded that the variables of being interested in plants and animals during childhood and reading news about environmental problems in newspapers had no effect on Azerbaijani students' ecocentric attitudes. The results of previous studies appear to support the findings of this research. The significant difference observed in terms of the variable of engaging in raising animals or cultivation can be ascribed to the fact that the students have religious environmental ethics approach and that approach has the idea that all things created by God should be nurtured and protected (Des Jardins 2006) and emphasizes engaging in raising animals or cultivation. In addition, the lack of significant difference between the type of school and ethical attitudes toward the environment revealed that these schools have similar perspectives about the environment. This similarity in type of schools also did not cause any change between the variables of grade, gender, taking or not taking the environment course with regard to the students. Therefore, if primarily the schools are aware of the environmental ethics approaches, provide education according to these approaches and if the education system is reorganized by particularly considering these approaches, this may help this uniformity among the students be eliminated. Thus, solutions to environmental problems will be diversified. There was also no significant difference in the students' ethical approaches toward the environment by place of residence where they stayed the longest throughout their lives. This may be ascribed to the fact that their families raised them and educated them in a similar way, regardless of where they stayed. The society's ethical approaches toward the environment are similar in general so it may be that different places of residence where they lived did not cause any difference in their ethical approaches. The society's ethical approaches toward the environment are similar in terms of the variable of economic income, which may also be the reason for the lack of significant difference by that variable. According to Carkoglu and Kentmen Cin (2015), living in less developed countries reduced the quality of the environment because of rapid industrialization and the use of older production technologies. When the MNE's (2013, 2014) biology course books for 9th grade and the respective curriculum were examined, no information was found about environmental ethics and it was seen that in the chapter on "current environmental problems", environmental problems and their effects in terms of human beings are referred to. Such descriptions in course books can be said to cause students to develop an anthropocentric environmental ethics approach. In this aspect, teachers teaching the information in these books to students can affect the whole society and cause every individual to exhibit similar ethical attitudes toward the environment.

A high rate of anthropocentric attitudes is undesirable, because this approach cannot serve towards the protection of the environment in the long term (Erten and Aydogdu 2011). In this paper, a high rate of religious ethics approach revealed is also undesirable because this ethics approach is for those sharing religious assump-

tions behind the values, which is not universal to draw ethical conclusions (Des Jardins 2006). Moreover, the students were found to have eco-feminist ethical approach the least, at the end of the paper. This implies that the families of the students, including female students, have a patriarchal structure. Thus, it is recommended that particularly ecocentric and eco-feminist approaches should be developed in students and all other people, other than religious ethics and anthropocentric ethics approaches. Eco-feminist approach entails a relationship, which is less disruptive and is balanced with the world (Des Jardins 2006), whereas the ecocentric ethical approach rejects that nature is a tool for others (Kiliç 2013). Those with high ecocentric approach place an emphasis on the fact that nature should be protected for nature and are expected to show behavior beneficial to the environment (Erten and Aydogdu 2011). Therefore, educational work necessary to develop particularly ecocentric approach in people should start and solutions to environmental problems of Turkey and the world should be provided through these perspectives. According to Eren (2015), people can change their consciousness and establish a balanced relationship with nature again.

CONCLUSION

The paper revealed that the students' ethical approaches toward the environment did not vary. The ethical approaches which dominated in general were religious and anthropocentric approaches. The students have similar attitudes toward these approaches, and hence these attitudes did not cause any difference in terms of the variables.

RECOMMENDATIONS

First of all, the information and concepts regarding environmental ethics should be incorporated into biology course books and the curriculum. Seminars should be organized so that teachers are familiar with the ethical approaches. Both students and teachers thus will acquire knowledge about ethical approaches, which will also affect the society in the long term and enable raising generations who look at environmental problems from different perspectives.

Primary education starts in the family, hence awareness-raising work, particularly involving parents, should be carried out and ethical approaches should be explained.

Similar studies can also be conducted for students in various regions, and general environmental ethics approaches can be identified. Accordingly, information about other environmental ethics approaches can be provided and particularly ecocentric ethics can be developed in students.

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