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ENVIRONMENTAL ATTITUDES OF PRE-SERVICE TEACHERS: A CASE STUDY AT AFYONKARAHİSAR

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ABSTRACT

This study aims to investigate the environmental attitudes of Elementary Science pre-service teachers and Social Studies pre-service teachers in terms of some variables. These variables are gender, departments of pre-service teachers, educational status of pre-service teachers' mothers and fathers. Descriptive survey design of quantitative research approaches has been used in this study. The study population consists of 82 volunteer pre-service teachers from Education Faculty, Afyon Kocatepe University, Afyonkarahisar. The study data has been collected by using "Attitude scale toward environmental problems" developed by (Şama, 2003). In order to evaluate the findings, arithmetic mean, t test and Kruskal Wallis test are performed. The results of the study indicate that environmental attitudes of pre-service teachers participated in this study are in desired level. In addition, according to findings environmental attitude scores of male participants are higher than female participants however there is not any statistically meaningful difference between them. Also, a meaningful difference between departments of pre-service teachers which are elementary science education and social studies education could not be found. Moreover, when analyzed the effect of educational status of parents of pre-service teachers, there could not be found any meaningful difference among them. At the end of the study, some suggestions are presented in accordance with the results of the study.

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STRUCTURED ABSTRACT

Introduction and objective of the study

Life standards of human are increasing day-by-day and as a result of increasing standards people start to use more energy, material and field in order to meet their needs. Therefore, a new vision is necessary to save the World from side effects of increasing consumption. The main effect of increasing power and material need is environmental problems such as global warming, melting of ice caps, acid rains and decrease of beneficial agricultural fields etc. It can be said that the biggest share of informing people is belonging to teachers especially in primary school levels. Elementary school teachers may easily touch people and inspire them. Hence, the environmental attitudes of elementary school teachers play very crucial role. The aim of this study is to determine the environmental attitudes of elementary sciences pre-service teachers and social studies pre-service teachers and to investigate the effects of some variables which are gender, department and educational status of pre-service teachers' fathers and mothers on environmental attitudes of pre-service teachers participated in the study. There are five questions in this study of which answers are investigated. These questions are 1) What is the level of environmental attitude of pre-service teachers? 2) Is there a significant difference on environmental attitude of pre-service teachers in terms of gender? 3) Is there a significant difference on environmental attitude of pre-service teachers in terms of their department? 4) Is there a significant difference on environmental attitude of pre-service teachers in terms of their mothers' education status? 5) Is there a significant difference on environmental attitude of pre-service teachers in terms of their fathers' education status?

Conceptual framework

Environment term is started to use widely in the last quarter of 20th century as a result of threated human being by environmental problems (Karatekin & Aksoy, 2012). Therefore, a new education method for the saving of environment has been necessary. Education system should consist of approaches that educate people sensitive to environment (Kaya, 2014).

Education of young people is very crucial subject because they will be responsible for dealing with environmental problems as future scientist, teachers, policy makers and consumers (Bradley, Waliczek, & Zajicek, 1999). Hence, it can be said that new education model should change radically attitudes and behaviors of people toward the environment. According to Atasoy and Ertürk (Atasoy & Ertürk, 2008) education for environment should intertwine with curriculum of citizenship, human rights, ecology, aesthetic, moral and democracy lectures. In order to design such an education model, problems concerning environment should be revealed firstly. Then, specific solution for countries can be drawn. In literature there are many studies indicating that environment education is not enough and it is only memorial not applicable (Liere & Dunlap, 1980) (Brewer, 2001) (Webb & Boltt, 1990) (Orr, 2004) (Özkan, Tekkaya, & Geban, 2001) (Haktanır & Çabuk, 2000).

Method

In this study, descriptive survey design which is one of the quantitative research approaches is used. The research instrument was determined after a process of examination of the literature. Participants of this study is total 82 pre-service teachers of which are 62 female and 20 male pre-service teachers. Maximum variation sampling method was used to select the sample of the study. The reason for choosing this method is to reflect the ideas and thoughts of participants having different attitudes (Yıldırım & Şimşek, 2013). Participants are volunteer for this research and they are senior students in Afyon Kocatepe University Elementary Science Education and Social Studies Education department.

As data collection tool, 'Attitude scale toward environmental problems' developed by Şama (2003) was used. The scale used in this research contains 21 questions. The scale was 5 point likert scale which is 'strongly disagree', 'disagree', 'indecisive', 'agree' and 'strongly agree'. 10 of scale items are negative and 11 of them are positive. Cronbach alpha (α) reliability factor value for original scale is .77 and the reliability factor for this research is found as .72.

Arithmetic mean, t test and Kruskal Wallis test are performed for the data gathered from 82 preservice teachers. T test is applied to decide whether gender and their department affect their environmental attitude level or not. On the other hand, Kruskal Wallis test is applied for whether their parents' educational status affects their environmental attitude level or not.

Results and Discussion

As results indicated arithmetic mean of scores obtained from 82 pre-service teachers is 76.32. Also, results showed that scores of pre-service teachers from social studies department are lower than scores of pre-service teachers from elementary science education department.

Scores of female pre-service teachers were found a little bit lower than male pre-service teachers ($X_{60}=76,22$ and $X_{22}=76,59$, respectively). However, there is not any meaningful difference between them.

When compared departments of participants, scores of pre-service teachers from elementary science department ($X_{40}=78,53$) are higher than scores of social studies department pre-service teachers ($X_{35}=74,66$). As a result, there could not be found any statistically meaningful difference between them.

Finally, the effects of educational status of parents of participants were investigated and results indicated that there was not any statistically meaningful difference between environmental attitudes and parents' education status.

Conclusions

According to findings of this study following remarks can be concluded and suggested:

- Environmental education lectures and their weekly hours can be increased,

- Applied studies of environmental education can be increased in order to be more effective on students' perception.
- Opportunities for pre-service teachers for field trips can be raised. Therefore, these types of educations contribute the environmental attitudes of pre-service teachers.

Keywords: pre-service teachers, environmental attitude, gender, elementary science department, social studies department

ÖĞRETMEN ADAYLARININ ÇEVRESEL TUTUMLARI: AFYONKARAHİSAR İLİ ÖRNEĞİ

ÖZET

Bu çalışmanın amacı fen bilgisi öğretmen adayları ile sosyal bilgiler öğretmen adaylarının çevresel tutum düzeylerini belirlemek ve çevresel tutum puanlarını bazı değişkenlere göre incelemektir. Bu değişkenler cinsiyet, öğretmen adaylarının bölümleri, öğretmen adaylarının anne ve babalarının eğitim düzeyleridir. Bu çalışmada nicel analiz yöntemlerinden betimsel tarama tekniği kullanılmıştır. Çalışma Afyon Kocatepe Üniversitesi Eğitim fakültesi fen bilgisi öğretmenliği ve sosyal bilgiler öğretmenliği anabilim dallarında öğrenim görmekte olan 62'si kadın 20'si erkek olmak üzere toplam 82 gönüllü öğretmen adayı ile yapılmıştır. Çalışmada veri toplama aracı olarak Şama (2013) tarafından geliştirilen 'Çevresel problemler için tutum ölçeği' kullanılmıştır. Bulguları değerlendirmek için aritmetik ortalama, t test ve Kruskal Wallis testleri uygulanmıştır. Çalışma sonuçlarına göre bu çalışmaya katılan öğretmen adaylarının çevresel tutumları ortalamanın üzerindedir. Buna ek olarak, bulgulara göre çalışmaya katılan erkek öğretmen adaylarının puanları kadın öğretmen adaylarının puanlarından daha yüksektir fakat aralarında istatistiksel olarak anlamlı bir fark bulunamamıştır. Ayrıca öğretmen adaylarının anabilim dalları karşılaştırıldığında da aralarında anlamlı bir fark bulunamamıştır. Öğretmen adaylarının anne ve babalarının eğitim durumları göz önüne alınarak yapılan analizler de anne ve babaların eğitim durumları ile öğretmen adaylarının çevresel tutumları arasında anlamlı bir farka rastlanmamıştır. Çalışma sonunda çalışmada elde edilen bulgulara dayanarak çevre eğitimini içeren derslerin saatlerinin artırılması, uygulama imkanlarının artırılması gibi bazı önerilerde de bulunulmuştur.

Anahtar Kelimeler: öğretmen adayları, çevresel tutum, cinsiyet, fen bilgisi öğretmenliği, sosyal bilgiler öğretmenliği

Introduction

As standards of life increases, total consumption of energy, material and field go up too. Therefore, this increase in utilization of energy, material and field causes some environmental problems such as global warming, melting of ice caps, acid rains, decrease of beneficial agricultural fields. Environment term is started to use widely in the last quarter of 20th century as a result of threatened human

being by environmental problems (Karatekin & Aksoy, 2012). Therefore, a new education method for the saving of environment has been necessary. Education system should consist of approaches that educate people sensitive to environment (Kaya, 2014).

Education of young people is very crucial subject because they will be responsible for dealing with environmental problems as future scientist, teachers, policy makers and consumers (Bradley, Waliczek, & Zajicek, 1999). Hence, it can be said that new education model should change radically attitudes and behaviors of people toward the environment. According to Atasoy and Ertürk (Atasoy & Ertürk, 2008) education for environment should intertwine with curriculum of citizenship, human rights, ecology, aesthetic, moral and democracy lectures. In order to design such an education model, problems concerning environment should be revealed firstly. Then, specific solution for countries can be drawn. In literature there are many studies indicating that environment education is not enough and it is only memorial not applicable (Liere & Dunlap, 1980) (Brewer, 2001) (Webb & Boltt, 1990) (Orr, 2004) (Özkan, Tekkaya, & Geban, 2001) (Haktanır & Çabuk, 2000).

When considered the importance of environmental education, informing pre-service teachers who will be teacher in future to educate students about environment is one of the most crucial subjects of environmental education. So it can be concluded that pre-service teachers should get high level of education about environment subject. Only teachers sensitive and conscious to environment can help their students to get responsibility and consciousness about the environment (Şahin, Cerrah, Arzu, & Şahin, 2014).

The objective of the study

The general objective of this study is to evaluate environmental attitudes of pre-service teachers in terms of various parameters. In order to complete the research, responses of the following questions are investigated.

1. What is the level of environmental attitude of pre-service teachers?
2. Is there a significant difference on environmental attitude of pre-service teachers in terms of gender?
3. Is there a significant difference on environmental attitude of pre-service teachers in terms of their department?
4. Is there a significant difference on environmental attitude of pre-service teachers in terms of their mothers' education status?
5. Is there a significant difference on environmental attitude of pre-service teachers in terms of their fathers' education status?

Method

In this section, the information of research design, participants, data collection tool and data tools are presented.

Research Design

In this study, descriptive survey design which is one of the quantitative research approaches is used. The research instrument was determined after a process of examination of the literature. In descriptive survey design, it is targeted to investigate the theme, case or phenomenon without the effect of researcher (Sönmez & Alacapınar, 2011).

Participants

The participants in this study were 82 pre-service teachers from social studies education and elementary science education departments in Afyon Kocatepe University. Maximum variation sampling method was used to select the sample of the study. The reason for choosing this method is to reflect the

ideas and thoughts of participants having different attitudes (Yıldırım & Şimşek, 2013). Participants are volunteer for this research and they are senior students in Afyon Kocatepe University Elementary Science Education and Social Studies Education department. Sample of the study contains 82 students of which are 62 females and 20 males.

Data Collection

As data collection tool, 'Attitude scale toward environmental problems' developed by Şama (2003) was used. The scale used in this research contains 21 questions. The scale was 5 point likert scale which is 'strongly disagree', 'disagree', 'indecisive', 'agree' and 'strongly agree'. 10 of scale items are negative and 11 of them are positive. Cronbach alpha (α) reliability factor value for original scale is .77 and the reliability factor for this research is found as .72. 1,2,3,4 and 5 points are for strongly disagree, disagree, indecisive, agree and strongly disagree, respectively. For this point score system, the highest point which can be gathered from the test is 105 points and the lowest one is 21.

Data Analysis

Arithmetic mean, t test and Kruskal Wallis test are performed for the data gathered from 82 preservice teachers. T test is applied to decide whether gender and their department affect their environmental attitude level or not. On the other hand, Kruskal Wallis test is applied for whether their parents' educational status affects their environmental attitude level or not. To interpret the general mean of points for the scale, following evaluation is used:

0-35 points is low,

36-70 points is moderate,

and 71-105 is high.

Results

1. What are the levels of environmental attitudes of pre-service teachers?

Table 1. Environmental attitude levels of pre-service teachers

Environmental Attitude Scale	N	X	SS	Min.	Max.
	82	76.32	9.21	55	96

Levels for this scale: 0-35 low, 36-70 medium, 71-105 high.

As seen from Table 1, arithmetic mean of scores gathered from 82 pre-service teachers is 76.32. According to this arithmetic mean produced from analyses, social studies pre-service teachers' environmental attitudes are found higher than elementary science pre-service teachers'.

2. t test results of environmental attitude scores in terms of gender

In order to test whether there is a meaningful difference between environmental attitude scores and gender, t test analysis results for independent samples are given in Table 2.

Table 2. t test results of environmental attitude scores in terms of gender

Group	N	X	S	sd	t	p
Female	60	76,22	9,70	80	-,162	,872
Male	22	76,59	7,92			

According to results indicated in Table 2, female pre-service teachers' scores ($X_{60}=76,22$) have been found lower than male pre-service teachers' scores ($X_{22}=76,59$). As a result of the analyses, this difference between female and male pre-service teachers is not statistically meaningful ($t_{(-,162)} = ,872$, $p>0.05$). In other words, there is no meaningful difference between gender and environmental attitudes.

3. t test results of environmental attitude scores in terms of department

For the question 'Is there a meaningful difference between environmental attitude scores and pre-service teachers' department?', t test analysis for independent samples has been performed. Analysis results are given in Table 3.

Table 3. t test results of environmental attitude scores in terms of department

Group	N	X	S	sd	t	p
Elementary Science Education	40	78,53	7,94	73	1,895	,062
Social Studies Education	35	74,66	9,73			

According to the results given in Table 3, scores of pre-service teachers in elementary science education department are higher ($X_{40}=78,53$) than scores of pre-service teachers in social studies education department ($X_{35}=74,66$). As a result of the analysis, a meaningful difference between pre-service teachers in elementary science education department and social studies education department cannot be found [$t_{(1,895)} = ,062$, $p>0.05$].

4. Kruskal Wallis test results for environmental attitude scores in terms of education status of pre-service teachers' fathers

In order to find answer for the question 'Is there a statistically meaningful difference between environmental attitude scores and educational status of pre-service teachers' fathers?', Kruskal Wallis test is performed because of nonhomogeneous distribution of the data. Analysis results are given in Table 4.

Table 4. Kruskal Wallis test results for environmental attitude scores in terms of education status of pre-service teacher' fathers

Education status of fathers	N	Mean	sd	X ²	P	Meaningful difference
Primary School	49	40,84	2	3,756	,153	----
Higher Education	24	36,60				
University or higher	8	55,19				

In order to investigate whether educational status of pre-service teachers' fathers affect the environmental attitude scores or not, table 4 shows that a meaningful difference between pre-service teachers' environmental attitude scores could not be found in terms of their fathers' educational status [$X^2=3.756$ $p>0.05$].

5. Kruskal Wallis test results for environmental attitude scores in terms of education status of pre-service teachers' mothers

In order to find answer for the question 'Is there a statistically meaningful difference between environmental attitude scores and educational status of pre-service teachers' mothers?', Kruskal

Wallis test is performed because of nonhomogeneous distribution of the data. Analysis results are given in Table 5.

Table 5. Kruskal Wallis test results for environmental attitude scores in terms of education status of pre-service teacher' mothers

Education status of mothers	N	Mean	sd	X ²	P	Meaningful difference
Illiterate	10	46,15	3	3,395	,335	----
Primary school	54	41,61				
Higher education	15	33,00				
University or higher	2	58,75				

In order to investigate whether educational status of pre-service teachers' mothers influence the environmental attitude scores or not, table 5 illustrates that a meaningful difference between pre-service teachers' environmental attitude scores could not be found in terms of their mothers' educational status {X²=3,395 p>0.05}.

Discussion and Conclusion

This study aims to investigate the environmental attitudes of pre-service teachers in terms of different variables such as gender, department, educational status of pre-service teachers' mothers and fathers. This section presents brief results of findings gathered from analyses. Results taken from sub-problems are as follows:

It can be said that environmental attitudes of pre-service teachers participated in this study are high. Having high level of environmental attitude of pre-service teachers can be explained that those pre-service teachers see themselves as a part of environment and having a strong empathy toward to nature according to (Erdoğan, 2009) and (Güler, 2013). Results gained from this study are similar to studies conducted by Güler (2013), (Alp, 2005), (Tuncer, Sungur, Tekkaya, & Ertepinar, 2004); and (Yılmaz, Boone, & Andersen, 2004).

Analysis results of environmental attitudes in terms of gender demonstrate that male participants have higher points than female participants, in spite of there is no statistically difference. According to t test results conducted to reveal whether this difference statistically meaningful or not, difference between male participants' scores and female participants' scores is not meaningful. In other words, there is no meaningful difference between environmental attitude and gender. Literature studies show that (Teyfur, 2008), (Özay-Köse, 2010), (Genç & Genç, 2013), (Akbaş, 2007), (Polat, Öğretmen adaylarının çevre sorunlarına yönelik tutumları, 2012), and (Akıllı & Genç, 2015) could not find a meaningful difference between environmental attitudes and gender in their studies. However some other studies show that female participants have higher environmental attitude scores than male participants (Değirmenci, 2013), (Ek, Kılıç, Ögdüm, Düzgün, & Şeker, 2009), (Gürbüzöğlü-Yalmanlı & Gözüm, 2011) (Kaya, Akıllı, & Sezek, 2009), (Öcal, 2013), (Şenyurt, Temel, & Özkahraman, 2011).

Results of analysis in order to reveal the effect of pre-service teachers' department on environmental attitudes of pre-service teachers indicate that there is no meaningful difference between pre-service teachers of Elementary Science department and Social Studies department. According to studies conducted by (Aksu, 2009) and (Karadayı, 2005), there is not any meaningful difference between pre-service teachers' departments and environmental attitudes.

Another analysis is performed for investigation of the influence of educational status of pre-service teachers' mothers on environmental attitudes of pre-service teachers. A statistically meaningful

difference could not be found between pre-service teachers whose mothers educational status are illiterate, primary school, higher school and university. (Ercengiz, Keçeci-Kurt, & Polat, 2014), (Şenyurt, Temel, & Özkahraman, 2011), (Malkoç, 2011), and (Aydın & Çepni, 2012) could not find any statistically meaningful difference between environmental attitudes and educational status of pre-service teachers' mothers. However, (Özmen, Çetinkaya, & Nehir, 2005) and (Polat, 2012) have found that students whose mothers are graduated from university have higher scores than students whose mothers are not graduated from university.

According to analysis results performed to see the effect of educational status of pre-service teachers' fathers on environmental attitudes of the students, any statistical meaningful difference could not be detected among the scores of pre-service teachers whose fathers' educational status are primary school, higher school or university. Similar results can be obtained the studies found in literature conducted by (Ercengiz, Keçeci-Kurt, & Polat, 2014), (Malkoç, 2011), (Erol, 2005), (Tecer, 2007), (Ek, Kılıç, Ögdüm, Düzgün, & Şeker, 2009), and (Taycı-Ünal, 2009). On the other hand, (Şenyurt, Temel, & Özkahraman, 2011), (Şama, 2003) and (Polat, 2012) have found a statistically meaningful difference between environmental attitudes of students and their fathers' educational studies. Results indicate that difference has been found in favor of pre-service teachers whose fathers' educational status is higher.

This study is conducted in order to see the effect of different variables on environmental attitudes of pre-service teachers. According to findings of this study following remarks can be concluded and suggested:

- Environmental education lectures and their weekly hours can be increased,
- Applied studies of environmental education can be increased in order to be more effective on students' perception.
- Opportunities for pre-service teachers for field trips can be raised. Therefore, these types of educations contribute the environmental attitudes of pre-service teachers.

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