International Journal of Research in Education and Science (IJRES)

www.ijres.net

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To cite this article:

Alagoz, B. & Akman, O. (2016). A study towards views of teacher candidates about national and global environmental problems. *International Journal of Research in Education and Science (IJRES)*, *2*(2), 483-493.

IJRES International Journal of Research in Education and Science
Volume 2, Issue 2, Summer 2016 ISSN: 2148-9955

A Study towards Views of Teacher Candidates about National and Global Environmental Problems

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Abstract

In this research, determination of primary school, social studies and mathematics candidate teachers' awareness and susceptibility levels about environmental problems, solution suggestions about these problems, activities used in environmental education and views about environmental education were targeted. Sample of this research comprised of 449 candidate teachers from Nizip Education Faculty (Gaziantep University) and Education Faculty of Çukurova University. Research carried out in Fall Semester of 2015-2016 Education year. The data collection tool was a questionnaire done by candidate teachers. In the data analysis, number, percentage, average and standard deviation as descriptive statistical methods were used. One way ANOVA test was used in comparison of quantitative continuity data between more than two independent samples. Scheffe test was used as subsidiary post-hoc analysis for determining differences after ANOVA test. Pearson correlation analysis was practiced between continuous variables of research. Analysis results showed that "social susceptibility" and "general susceptibility" level of the participants was high whereas "academic susceptibility" level of the participants was very high. Environmental education, which is the biggest factor in awakening environmental awareness, must be extended to all the masses. One way to make this happen is to put weight on environmental education in the formal education programs.

Key words: Global and national environmental problems; Environmental education; Candidate teachers

Introduction

Environmental issues are an ever-increasing threat to all humans, living beings and the natural balance. This can be explained by a very simple example. World is 4.6 billion years old. Let's assume this figure is 46 years, which means humanity is only 4 hours old. Industrial revolution happened only a minute ago; however in this minute alone, more than 50% of world's forests have been destroyed. Mamatha Ghandi expressed our misdeeds against forests to be a reflection of our misdeeds to each other (Wyner, 2013). Why do we, ever so insatiably and selfishly, attack world's natural resources? Why can't we manage to make industrialization, rapid population increase, developments in technology and science, increased needs and globalization a part of the solution rather than a factor of the problem (Davis, 1998; Watson & Halse, 2005; Baykal & Baykal, 2008; Negev *et al*., 2010). Answering this question is relatively difficult, but we can turn to natural history for hints: natural history tells us that species become extinct due to changes in the respective natural environment. Likewise, worsening of natural balance may make the extinction of human race a current issue. Humanity is bound to be a victim of the nature, as nature is a victim of humanity. Therefore, humans must make haste and carry out their individual duties to find a solution to the current issue of environmental problems (Erten, 2005). No matter how many precautions are to be taken in the fields of technology, law, politics and economy; lest humans make vital changes in their life styles, no global environmental issue will ever be solved (Kawashima, 1998).

Whether it can be for food or air, we humans are dependent on biosphere for survival (Miller, 2005; NSF ACRE, 2003; 2005; 2009). That said, majority of humans live in cities today, and connections to natural environment are slowly being severed. 60% of world's populace is expected to be living in cities by 2030. Ten years ago, this figure was 48% (United Nations Population Division, 2004). Many developed countries have reached the same average or even exceeded it. E.g. half of the populace in USA live in suburbs and an extra 30% live in city centers (U.S. Census Bureau, 2003); approx. 90% of United Kingdom's citizens live in cities (United Nations Population Division, 2003). In time, more people will be living in highly-altered places under the human rule, where the natural environment is expendable and ecological processes as our life resources are ignored (Miller, 2005).

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People's stray from natural habitat starts at childhood (Kahn, 2002). Asking children, who spend their time in shopping malls, artificial places of metropolitans, between blocks of concrete without stepping on soil and seeing the stars above, only seeing (or being forced to do so) the awakening of spring in TV documentaries that may be a bore to children as opposed to the actual thing, to care about the environment and find ways to stop related problems might not be impossible, but is going to be relatively difficult. It is very important to bring together children and what has been lost to humanity in terms of natural environment. Children must be personally made to attend environmental protection and related solution activities. This would mean first-hand experience for children and thusly having them obtain a permanent learning method known as living and learning, which might make reaching goals more doable. Research put forth that individuals, who spent their children seeing wild natural environments, will have more positive feelings towards them as adults (Bixler *et al*., 2002). The obtained data show that people, who made contact with natural habitats on a more personal level, will be more inclined to help in the protection of such places (Schultz *et al*., 2000; Williams & Carry, 2002).

Children tend to stay indoors to watch TV or play video games rather than to go out with their friends. In the USA alone, a child on average will spend less than an hour outside - keep in mind this was more a couple of decades ago - whereas the same child will watch TV for more than four hours (Orr, 2002). Such a tendency reflects the acceptance of a life-style that includes less mobility and more visual entertainment in all age groups, which leads to more severe problems in terms of psychological and physical health (Miller, 2005). This marks the entry to an era of inexperienced individuals, a loop of impoverishment is beginning. Discomfort and apathy are being brought on by the loss of local plant and animal variety. This situation is the leading cause of environments increasingly losing their biological aspects to themselves, and being greatly isolated from nature. Would humans invest in the prevention of the natural ecosystem, if they did not show more interest or failed to see the link in between it and their own lives? (Pyle, 1978).

Today we see a shift from corporate factors to ethical factors in regards to "responsibility". Most impactful examples of this change can be seen in the field of environmental issues. As a result of human activities taking shape in a behavioral spectrum starting from apathy going all the way to aggressiveness; urban and environmental values are facing a crisis of extinction throughout the world. Humans share the collective burden of their selfish tendencies that caused the impact area of environmental issues to spread in a global scale. It is now a match-off between irresponsible individual and society, or in short; human versus humanity (Keleş, 1997). Globalization of environmental issues and its reaching to a point of being a threat to all life in the planet (Özel, 2007) forced humans to question their relationship with nature and their behaviors/tendencies towards environment; to re-evaluate their duties and responsibilities; and to re-define environmental ethics, ecological culture and environmental awareness.

Recent years have seen the inception of re-examination in regards to the relationship between education and environmental issues; and how compliant teachers, schools, curricula are to training individuals, who possess high environmental/ecological awareness, are being brought into question. Thus notions such as virtue, ethics, value, empathy, balance, synergy, morality, development, economy have been re-defined from an ecological stand-point. The necessity, importance, function and impact of education in regards to environment are in question; while the peripheralization of lectures and the issue of inadequate school education in terms of environmental awareness have become the center of dispute in many countries (Atasoy, 2005).

After all the disputes, the conclusion reached was the imperativeness of developing an education system that responds against negativities, and acts as an active participant in issues related to environment to train individuals who are aware of related topics. Mutual respect and training individuals to possess humanly values must be prioritized. Thereby, being in the correct knowledge of all environmental factors and protecting the environment itself can be rendered possible (Çabuk & Karacaoğlu, 2003). The most effective tool in reaching this goal is an adequate, mapped-out and purposeful environmental education system so as to provide awareness, conscience and information regarding environmental issues to the students of all grades. Said system must include contents that will last a life-time of education starting from pre-school education and extending to all formal and non-formal educational spheres (İleri, 1998; Yücel & Morgil, 1998; Ünal & Dımışkı, 1999). In order to bring this about, one of the most important things is to train the next generation's teachers with required know-how in environmental education. Purpose of the environmental education given in high school institutes is to teach individuals environmental awareness and have them focus on issue-related solutions (Soran *et al*., 2000; Şimşekli, 2001; Güven, 2013).

Study Purpose

The dimension of issues that stem from the tendencies and thoughts of humans towards environment is a global one and has an all-purposeful interest content. Environmental education have been improved as effective in the solution of said problems in the sense of relationships that environment has with human race. This research focuses on examining the knowledge, information sources, thoughts, judgments, awareness of teacher candidates and their suggestions in terms of how to protect the environment and provide environmental education by also taking basis from their conduct in related activities; as well as the causation factors of global, national and local environmental issues, prevention of environmental pollution and overall protection of environment.

Material and Methods

In this part, the model of the survey, universality and sampling, data sources, how this data was collected and processed, and statistical techniques used in this survey are going to be explained. This research utilizes quantitative research techniques. Descriptive statistical research have been used in order to determine the views of social sciences and class teacher candidates on global and national environmental issues, as well as their social and academic awareness toward these issues. The descriptive research aims to explain the situational interaction, by taking into account the relationship that current issues have with older issues and circumstances. In research such as these, observation and test techniques are applied alongside with survey and interview (Kaptan, 2000). In the data gathering from the sampling, the survey technique has been applied.

Sampling

The sampling of this study is comprised of 449 teacher candidates, who received education in the fall term of the 2015-2016 school year from the Departments of Primary School Teaching and Social Sciences Teaching in the Faculty of Education, Gaziantep University & Faculty of Education, Çukurova University.

Data Gathering Tools

Survey that was applied to the class and social sciences teacher candidates was developed by Karadayı (2005). However, some changes were made pre-application. A pilot scheme was used for the reliability of survey items and an item was removed after the application of the pilot scheme. The results of this pilot scheme were evaluated according to their statistical functions and the reliability co-efficient of the survey has been determined as (Cronbach Alpha value) 0,81. This result is a testament to how reliable this scale is (İbiş, 2009; Aydin, 2010).

Data Analysis

The data obtained from the research was analyzed via the SPSS (Statistical Package for Social Sciences) for Windows 22.0 software. In the evaluation of the data; numbers, percentages, averages, standard deviations were used as descriptive statistical methods. Grades of the scale dimensions are valued between 1 and 5. This range has amplitude of 4 points. This amplitude was divided to five equal amplitudes in itself and the findings were valued as the following; 1.00- 1.79 as “very low”, 1.80- 2.59 as “low”, 2.60- 3.39 as “average”, 3.40-4.19 as “high”, 4.20-5.00 as “very high”. The one-way ANOVA test was utilized in the comparison of the quantitative continuous data in between more than two independent groups. In order to determine discrepancies after the ANOVA test, the Scheffe Test was utilized as the descriptive post-hoc analysis. The Pearson correlation analysis was used between the continuous variables of the research. The obtained findings were valued at 95% confidence interval, and at 5% significance level.

Findings and Discussion

In this section, the findings can be found that were obtained in the wake of the analysis of the data gathered from the scales of teacher candidates, who participated in the research; in order to provide with a break-down of the research problem. Explanations and comments were then committed based on the obtained findings.

Table 1. Descriptive features of teacher candidates

Tables	Groups	Frequency(n)	Percentage (%)
Departments	Class	193	43,0
	Social	156	34,7
	Mathematics	100	22,3
	Total	449	100,0
Grades	1	184	41,0
	2	183	40,8
	3	62	13,8
	4	20	4,5
	Total	449	100,0
Environmental Issues in the World	Use of Natural Resources	99	22,0
	Air Pollution/Climate Change	153	34,1
	Radioactive Pollution	79	17,6
	Energy Problem	15	3,3
	Urbanization/Population Increase	72	16,0
	Water Pollution	31	6,9
	Total	449	100,0
Environmental Issues in Turkey	Use of Natural Resources	143	31,8
	Air Pollution	86	19,2
	Radioactive Pollution	23	5,1
	Deforestation	72	16,0
	Energy Problem	40	8,9
	Climate Change	37	8,2
	Water Pollution	42	9,4
	Other	6	1,3
	Total	449	100,0
The Most Effective Groups	Statesmen	89	19,8
	Educators	169	37,6
	Environmental Institutions	120	26,7
	Executives	48	10,7
	Students	14	3,1
	Other	9	2,0
	Total	449	100,0
The Biggest Contributors to the Unaware	Newspapers-journals	23	5,1
	Schools	119	26,5
	Municipalities	22	4,9
	Tv-radio	192	42,8
	Environmental Institutions	64	14,3
	Minister of Environment and Forestry	24	5,3
	Other	5	1,1
	Total	449	100,0
The Most Similar Views	Economic Growth Rate	16	3,6
	Balance	320	71,3
	Limitation	113	25,2
	Total	449	100,0
Goals	Active Student	170	37,9
	Daily Life	95	21,2
	Understanding	62	13,8
	They Need to Know	54	12,0
	Problem Solving and Decision Making	40	8,9
	Interest and Attention	23	5,1
	Other Reasons	5	1,1
	Total	449	100,0
Grade of Education	Pre-school	281	62,6
	Primary School	143	31,8
	Middle School	8	1,8
	High School	4	0,9
	Non-formal Education	13	2,9
	Total	449	100,0

According to Table 1, the most important environmental issues in the world for teacher candidates are the air pollution and climate change (both at 34,1%). Other environmental issues are as follows; use of natural resources (22,0%), urbanization/population increase (16%), water pollution (6,9%), energy problem (3,3%), and radioactive pollution (17,6%). As opposed to this, the most important environmental issue in Turkey is the use of natural resources (31,8%). Other environmental issues are as follows; air pollution (19,2%), deforestation (16%); water pollution (9,45%); energy problem (8,9%), climate change (8,2%) and radioactive pollution (5,1%).

Teacher candidates stated the most effective group in the solution of environmental issues to be educators (37,6%) and consecutively, environmental institutions (26,7%). Other groups are; statesmen (19,8%), executives (10,7%) and students (3,1%) respectively. Whereas, the biggest contributors to the unaware are, according to the teacher candidates, as follows; TV-radio (42,8%), schools (26,5%), environmental institutions (14,3%), newspapers-journals (5,1%), municipalities (4,9%), Ministry of Environment and Forestry (5,3%) and other institutes (1,1%).

Teacher candidates were asked about their views on economic growth and ecological balance; 71% of participants turned positively to the view "a livable world model needs to be made by creating balances between economic sanctions and technological/economic growth". Whereas 25% of participants agreed on the view "limitations must be made in economic and technological growth to protect the environmental and natural balance". The rest 3,6% of participants favored the view "a livable world model needs to be made by creating balances between economic sanctions and technological/economic growth".

According to 37,9% of participants, the purpose of teaching environmental issues is to encourage students to be more active in the protection of environment; according to 21,2% of participants, it is to show students the relation between what they are thought in school and daily life; according to 13,8% of participants, it is to help students understand the issues of today; according to 8,9% of participants, it is something that they need to know; according to 5,1% of participants, it is to teach them problem solving and decision making skills; and according to 1,1% of participants, environmental issues are interesting and provoke attention among students.
The question as to in which grade of education environmental education should be given were answered by 62,6% of participants as pre-school, by 31,8% of participants as primary school, by 2,9% of participants as non-formal education, by 1,8% of participants as middle school, and by 0,9% of participants as high school.

Table 2. Awareness of teacher candidates in environmental problems and environmental education

	Average	**Standard Deviation**	**Social Awareness**	**Academic Awareness**	**General Awareness**
Social Awareness	3,542	0,613	1,000		
Academic Awareness	4,470	0,478	0,286**	1,000	
General Awareness	3,979	0,444	0,875**	0,715**	1,000

It can be seen according to Table 2 that the survey-participant teacher candidates agree highly (3,542 ± 0,613) on the "items regarding social awareness", agree very highly (4,470 ± 0,478) on the "items regarding academic awareness", and agree highly (3,979 ± 0,444) on the "items regarding general awareness" in terms of environmental issues and education. The data obtained from Table 2 put forth weak but a positive relationship ($r=0.286$; $p=0,000<0.05$) between academic awareness and social awareness. According to the data, there is a significantly positive relationship between awareness and social awareness ($r=0.875$; $p=0,000<0.05$), as well as between general awareness and academic awareness ($r=0.715$; $p=0,000<0.05$). In the light of the data; the teacher candidates are highly aware in all three fields (social, academic and general), when it comes to environmental education and environmental problems.

In the wake of the one-way variance analysis (ANOVA) that was conducted to determine whether or not the social awareness point averages of the participant teacher candidates regarding environmental problems and environmental education showed a significant discrepancy based on the variable of department, the obtained discrepancy between group averages was found statistically significant ($F=5,348$; $p=0,005<0.05$). Descriptive post-hoc analysis was utilized to determine the sources of these discrepancies. Social awareness points of the social sciences teacher candidates regarding environmental issues and education (3,658 ± 0,599) were found to

be higher than those of class teacher candidates (3,514 ± 0,651). Social awareness points of the social sciences teacher candidates (3,658 ± 0,599) were also found higher than those of mathematics teacher candidates (3,412 ± 0,525). Based on the fact that the social sciences teacher candidates have higher social awareness points in terms of environmental issues and education as opposed to the class and mathematics teacher candidates, one can infer that the social sciences teacher candidates have learned the topics of social science lessons by heart.

Table 3. Department-based averages of awareness of teacher candidates in environmental problems and environmental education

	Group	**N**	**Ave.**	**Sd**	**F**	**p**
Social Awareness	Class	193	3,514	0,651	5,348	0,005
	Social	156	3,658	0,599		
	Mathematics	100	3,412	0,525		
Academic Awareness	Class	193	4,468	0,512	0,422	0,656
	Social	156	4,494	0,442		
	Mathematics	100	4,438	0,465		
General Awareness	Class	193	3,963	0,462	4,039	0,018
	Social	156	4,051	0,443		
	Mathematics	100	3,895	0,394		

In the wake of the one-way variance analysis (ANOVA) that was conducted to determine whether or not the general awareness point averages of the participant teacher candidates regarding environmental issues and environmental education showed a significant discrepancy based on the variable of department, the obtained discrepancy between group averages was found statistically significant (F=4,039; p=0,018<0.05). Descriptive post-hoc analysis was utilized to determine the sources of these discrepancies. General awareness points of the social sciences teacher candidates regarding environmental issues and education (4,051 ± 0,443) were found to be higher than those of mathematics teacher candidates (3,895 ± 0,394). The fact that the social sciences teacher candidates have high general awareness points regarding environmental issues and education can be explained with said candidates possessing a holistic view in their approaches on the subject.

In the wake of the one-way variance analysis (ANOVA) that was conducted to determine whether or not the academic awareness point averages of the participant teacher candidates regarding environmental issues and environmental education showed a significant discrepancy based on the variable of department, the obtained discrepancy between group averages was found statistically significant (p>0.05). Table 4 provides the distribution of answers, which the participating teacher candidates gave to related statements on their awareness regarding environmental issue and education.

When looked at the answers given by the research-participant teacher candidates regarding their awareness on the subject of environmental issues and education, they agreed on the items either very highly, highly or on average. Items that the teacher candidates agreed “very highly” on are as follows; no. 8 (4,230 ± 0,891), no. 10 (4,265 ± 0,809); no. 11 (4,657 ± 0,646); no. 12 (4,637 ± 0,729); no. 13 (4,610 ± 0,689); no. 15 (4,388 ± 0,794); no 16. (4,526 ± 0,741) and no .17 (4,592 ± 0,711). Items that the teacher candidates agreed “highly” on are as follows; no. 1 (3,408 ± 0,921); no. 2 (3,635 ± 0,926); no. 3 (3,408 ± 1,023); no. 4 (4,198 ± 0,970); no. 9 (3,969 ± 0,935) and no. 14 (4,087 ± 0,993). Items that the teacher candidates agreed “on average” on are as follows; no. 5 (3,252 ± 1,177); no. 6 (2,755 ± 1,083) and no. 7 (3,018 ± 1,106).

In this study, where we researched the views of the class and social sciences teacher candidates regarding global and national environmental issues and environmental education, please find the obtained results and suggestions in this section. For the teacher candidates, the most important environmental issues of today’s world is the use of natural resources (İbiş, 2009; Aydin, 2010; Sadik & Sadik, 2014). For the participants, other important environmental issues are air pollution, deforestation, water pollution, energy problem, climate change and radioactive pollution respectively. According İbiş (2009) and Aydin (2010), the most important environmental issues in Turkey are primarily the use of natural resources, then deforestation, water pollution, energy problem, climate change and radioactive pollution in a respective order. Sadik & Sadik (2014) reportedly stated the most important environmental problem in Turkey to be urbanization. On the other hand, Yılmaz & Gültekin (2012) stated the primary environmental issues to be global warming and air pollution.

Table 4. Distribution of answers teacher candidates gave to related statements on their awareness regarding environmental issues and education

	Never		**Rarely**		**Occasionally**		**Usually**		**Always**			
	f	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**Ave.**	**Sd.**
1- I keep up with TV and radio programs regarding environment, environmental issues and nature	7	1,6	61	13,6	177	39,4	150	33,4	54	12,0	3,408	0,921
2- I read the newspapers and media outlets regarding environment, environmental issues and nature with care.	4	0,9	48	10,7	136	30,3	181	40,3	80	17,8	3,635	0,926
3- I attentively try to buy nature-friendly products when shopping.	13	2,9	79	17,6	131	29,2	164	36,5	62	13,8	3,408	1,023
4- As a teacher, I would like to take part in environment related activities in my school.	7	1,6	23	5,1	64	14,3	135	30,1	220	49,0	4,198	0,970
5- I take part in any environmentalist group to protect our environment.	36	8,0	82	18,3	142	31,6	111	24,7	78	17,4	3,252	1,177
6- I keep up with environment related periodicals.	54	12,0	136	30,3	158	35,2	68	15,1	33	7,3	2,755	1,083
7- I take part in environmental education related activities such as seminars, conferences etc.	36	8,0	113	25,2	156	34,7	95	21,2	49	10,9	3,018	1,106
8- As a teacher, I will take direct my students to environment related research and projects	5	1,1	16	3,6	60	13,4	157	35,0	211	47,0	4,230	0,891
9- As a teacher, aside from natural environment; I will also include topics such as artificial environment, public domains etc., which are indispensable parts of the daily life, in my classes.	5	1,1	26	5,8	95	21,2	175	39,0	148	33,0	3,969	0,935
10- I and my family can contribute to increase the air quality by making changes in our life-styles, no matter how small they are.	4	0,9	12	2,7	43	9,6	192	42,8	198	44,1	4,265	0,809
11- More efficient and cleaner technological materials must be utilized, which will not pollute the air, soil and water and will minimize the use of natural resources.	1	0,2	4	0,9	25	5,6	88	19,6	331	73,7	4,657	0,646
12- All world nations must accept international treaties to prevent perforations in the ozone layer.	3	0,7	6	1,3	31	6,9	71	15,8	338	75,3	4,637	0,729
13- In environmental education, problems must be thought with related solution suggestions.	3	0,7	3	0,7	26	5,8	102	22,7	315	70,2	4,610	0,689
14- There is a relationship between the destruction of rain forests and the climate change in European countries	16	3,6	14	3,1	65	14,5	174	38,8	180	40,1	4,087	0,993
15- Global warming is caused by the increase in co2 and other green house gas emissions	3	0,7	10	2,2	40	8,9	153	34,1	243	54,1	4,388	0,794
16- In environmental education, basic environmental information must be provided by synthesizing the fundamental information of plural scientific disciplines.	3	0,7	6	1,3	31	6,9	121	26,9	288	64,1	4,526	0,741
17- In environmental education; social environment, family, society and other social factors will make understanding the social component of our environment easier.	1	0,2	9	2,0	26	5,8	100	22,3	313	69,7	4,592	0,711

The research published in other nations put forth different results. E.g. Wong (2003) reportedly stated the world's most important environmental problem to be desertification, and China's most important environmental problem to be water pollution. The teacher candidates regarded educators (İbiş, 2009; Aydin, 2010) and then environmental institutes as the most effective groups in the solution of environmental issues; and preferred statesmen, executives and students as the other effective groups. Esa (2010) and Dalelo (2009) reached a similar conclusion and stated "*teachers*" to be the most effective individuals in teaching environmental awareness. The teacher candidates reported their preference in TV-radio outlets (Aydin, 2010; Sadik & Sadik, 2014), schools, environmental institutes, newspapers-journals, municipalities, Ministry of Environment and Forestry and other institutes, respectively, as the most contributing sources in provoking awareness on environment among people. That being said, İbiş (2009) put forth environmental institutes as the biggest contributors. Yılmaz *et al*., (2002); Maskan *et al*., (2006) and Özdemir & Çobanoğlu (2008) reported that the teacher candidates acquired numerous environment related information via the printed and visual media sources. Yılmaz *et al*., (2002) stated that university students in Turkey are kept in the loop on environmental information via the printed and visual media. Aydin (2010), who investigated the tendencies of Geography teacher candidates, found it thought-provoking how the participants had favored TV and radio outlets over schools in terms of awakening environmental awareness, and how come the Ministry of Environment and Forestry were not preferred as the biggest contributor in provoking environmental awareness among the masses. Daştan (1999) drew attention to the feasibility that voluntary organizations, mass communication tools and educational means could provide environmental information. In this regard, the importance of mass media is emphasized.

Environmental subjects change daily, and the environmental education programs should be examined and adjusted in a compliant manner by the field experts. Dissemination of mass communication tools and of environmental education should be prioritized, co-operation is a must in providing environmental education to the mass populace via TV/radio and media outlets (Aydin, 2010). The teacher candidates were questioned on their views regarding economic growth and ecological balance; 71% of participants turned positively to the view "a livable world model needs to be made by creating balances between economic sanctions and technological/economic growth" (İbiş, 2009; Aydin, 2010). Whereas 25% of participants agreed on the view "limitations must be made in economic and technological growth to protect the environmental and natural balance". The rest 3,6% of participants favored the view "a livable world model needs to be made by creating balances between economic sanctions and technological/economic growth". In the light of the data, we can say that the participants do not regard technological advancement as a negative factor, however they fully defend the necessity of utilizing economic sanctions as an inspection tool to create a balance between technology and economic growth.

According to the majority of participants, the goal of teaching environmental issues is to encourage students to be active in the protection of environment (İbiş, 2009; Aydin, 2010); according to 21,2% of participants, it is to show students the relationship between what they are thought in school and daily life; according to 13,8% of participants, it is to help students understand the issues of today; according to 8,9% of participants, it is something that they need to know; according to 5,1% of participants, it is to teach them problem solving and decision making skills; and according to 1,1% of participants, environmental issues are interesting and provoke attention among students. The question as to in which grade of education environmental education should be given were answered by 62,6% of participants as pre-school (İbiş, 2009; Aydin, 2010), by 31,8% of participants as primary school (Maskan *et al*., 2006), by 2,9% of participants as non-formal education, by 1,8% of participants as middle school, and by 0,9% of participants as high school.

The teacher candidates preferred the choice of planning field trips for the purpose of teaching environmental education for when they become teachers. İbiş (2009) and Aydin (2010) stated that the choice of creating a platform of discussion on books, papers, TV/radio programs that include environment related subjects is the most preferred one. Despite the fact that Aksoy (2003) put forth that a healthy environmental awareness can take shape among students with the problem solution method; the teachers candidates, who partook in this research, found the choice of creating a platform of discussion on books, papers, TV/radio programs that include environment related subjects to be sufficient in this regard.

It can be observed that the research participant teacher candidates have high "social awareness" (Sadik & Sadik, 2014); have very high "academic awareness" (İbiş, 2009; Sadik & Sadik, 2014); and have high "general awareness". Even though the number of environment related lectures provided within the frame of the class, social sciences and mathematics teaching departments are relatively limited (non-existent in the mathematics department), awareness levels of the teacher candidates being relatively high (especially in academic teaching) can stem from either the similarities of the education practices or the candidates' self-interest on the subject. It also can stem from the high education level of the teacher candidates and this having a positive correlation with

awareness towards environmental issues (Kavruk, 2002). Another important result of this study is the participants' statements on internet and TV as them being the most important factors that awake environmental awareness (İbiş, 2009; Sadik & Sadik, 2014). Possible reason for this is the inclusion of theoretical lessons within the frame of internet and TV (Akıllı & Yurtcan, 2009) and the potential that media can reach the masses in terms of awakening awareness. Research support that TV is the most preferred and effective information source in comparison with the printed sources (Aksu &Avcı, 2009; Altın, 2001; Erol, 2005; Pe'er *et al*., 2007; Spellman *et al*., 2010; Sadik & Sadik, 2014). Based on the research findings, the following suggestions are drawn attention that:

- Environmental education, which is the biggest factor in awakening environmental awareness, must be extended to all the masses. One way to make this happen is to put weight on environmental education in the formal education programs.
- Projects must be developed, which will help educate the masses about our environment within the body of primary schools, middle schools and universities; these projects must then be supported via related activities (nature trips, congresses, symposia).
- Effective education programs must be put into place, which will teach teacher candidates responsible environmental behaviors, and increase their awareness towards environmental issues and education. Environmental subjects change daily, and the environmental education programs should be examined and adjusted in a compliant manner by the field experts.
- Teacher candidates must be encouraged to reinforce their interest in our environment by realizing various nature trips in their civil lives, and to attend to numerous environmental activities and organizations. Conducting agricultural activities on a garden or getting a household pet can be considered as alternatives, as first-hand experience stays with the person permanently. Likewise, different education methods will spare students from mindlessly memorizing information and laziness, and will contribute to students in being productive, critical and self-evaluative. Required information and skills must be given to teacher candidates, so that they can utilize these education methods and techniques.
- Students must be encouraged to actively take part in environment related voluntary agencies, which hold a significant part and duty in having environmental education be included within the body of non-formal education.
- So as to provide individuals with environmental education, projects to help this cause must be developed within the frame of primary schools, middle schools and universities; and other related projects (panels, symposia…) must be organized for active support.
- Dissemination of mass communication tools and environmental education must be prioritized; co-operation is a must in providing environmental education to the mass populace via TV/radio and media outlets.
- The developing technology must be taken under control, and must be prevented from causing detriments, rather than benefits, to the individuals of the whole world.
- Voluntary agencies must be given sufficient incentive, as they hold an important place and duty in having environmental education included within the frame of non-formal education.
- Environmental education must be planned in a way that will comply with various grades of education. For example; in primary schools, the framework of environment-school must be focused.
- By using concrete learning methods; environment-human relationships, ecological collapses, environmental pollutions and practical problems regarding the self-perpetuation capacity of our planet must be made aware to students.
- Also social studies, mother language and science lessons must be integrated with environmental education programs in an interactive manner based on observation. Students interact mutually with their respective environments.
- By the integration of different fields' curricula, which can be defined as an education process based on problem solving, on the same topic; students will be provided with enough ground to assess their own learning environments and to take more part in the society.

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