



ELSEVIER



CrossMark

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

Procedia - Social and Behavioral Sciences 141 (2014) 1208 – 1214

---

---

**Procedia**  
Social and Behavioral Sciences

---

---

WCLTA 2013

## Environmental awareness level of secondary school students: A case study in Balıkesir (Türkiye)

Ahmet Altin <sup>a,b</sup> \*, Selcen Tecer <sup>c</sup>, Lokman Tecer <sup>d</sup>, Süreyya Altin <sup>b</sup>, Bekir Fatih Kahraman <sup>b</sup>

<sup>a</sup> *Bülent Ecevit University, Zonguldak Vocational School of Higher Education, Zonguldak, 67500, TURKEY*

<sup>b</sup> *Bülent Ecevit University, Department of Environmental Engineering, Zonguldak, 67100, TURKEY*

<sup>c</sup> *National Education Directorate, Strategy Department, Balıkesir, 10100, TURKEY*

<sup>d</sup> *Namık Kemal University, Department of Environmental Engineering, Tekirdağ, 59860, TURKEY*

---

### Abstract

In this study, secondary school students' awareness of environmental issues and problems and the level of their active participation in environmental activities have been identified, and the effects of some factors as family school and media on their environmental awareness and active participation have been investigated. The study was carried out in Balıkesir city centre by conducting a survey on senior students consisting of 6 classes from three secondary schools which have different demographic and socio-economic levels. The results of the study showed a high level of environmental awareness among participant students. However, it is understood that environmental disclosures made in schools are insufficient and the participation level of students to environmental activities is low. Students rather gain experiences in the field of environment from mass media (i.e. audio, printed and visual media). It is revealed that female students have a higher level of environmental awareness and active participation level. In addition, when family income and family education level increases, environmental awareness and active participation level of students also increases.

© 2014 Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

Selection and peer-review under responsibility of the Organizing Committee of WCLTA 2013.

*Keywords:* Environmental education, Secondary school, Environmental awareness, Active participation;

---

### Introduction

Individuals gain permanent environmental attitudes via environmental education. This leads to active

---

\* Corresponding author: Ahmet Altin Tel.: +90-372-265-6766

E-mail address: [a.altin.16@gmail.com](mailto:a.altin.16@gmail.com); [aaltin@beun.edu.tr](mailto:aaltin@beun.edu.tr)

participation in protection of the environment. Therefore, environmental education should not only inform and build a sense of responsibility, but also affect an individual's behaviours [1]. However, this education can be effective when it is based on life experiences beginning in the early years of life. For this reason, experiences gained during school-age shape an individual's outlook on environment [2]. Environmental education in Turkey is generally given in Social Sciences lessons or Science and Technology lessons at primary schools. Especially Science and Technology lesson covers most of the environmental education. Related curriculum has been revised in 2013-2014 school year.

There are a limited number of researches in Turkey about environmental interests, attitudes and awareness of students from different grades. Most of the studies have been carried out on primary school level [3-6] or university level [7-9]. It should be taken into account that every student is not able to complete university education. At this point, secondary level education appears to be essential in raising environmental awareness of students. In Turkey, there is a two-stage secondary level education consisting of Secondary School and High School. Studies on environmental awareness mostly focus on high school students [10-12] rather than secondary school students [13-15]. Therefore, this study focuses on secondary school students. Besides students' awareness of environmental issues and problems, their level of active participation in environmental activities has been identified. Also, the effects of some factors as family school and media on their environmental awareness and active participation have been investigated.

## 1. Methods

200 students participated in the study from three schools called A (34 students), B (83 students) and C (83 students) located in Balıkesir city centre. The study was performed by conducting a survey on senior students of 6 classes from secondary schools which have different demographic structures and socio-economic levels. 8th grade students were chosen because the survey questioned their knowledge resulting from environmental education. Questions were prepared considering decision-making abilities and knowledge levels of students. The survey consisted of two parts. First part included personal questions. Second part was divided into two sections; first section was about school-media relationship on environmental awareness formation; whereas second section measured students' awareness to environmental problems and participation levels to environmental organizations/activities. There were 25 questions on the survey. First 5 questions were prepared to have personal information of students and their families. 9 questions were prepared to understand the importance of school and media on environmental awareness. Some of these 9 questions are polytomous questions and some of them are dichotomous questions. Students' awareness to environmental problems and participation levels to environmental organizations/activities are investigated by 11 polytomous questions (Table 1).

Table 1. Environmental Awareness and Active Participate Scale questions.

<b>Questions</b>	
1	Do you think that you have sufficient information about environmental problems?
2	If people keep producing and consuming like this, would there be a serious raw material shortage?
3	Have economic growth and technological developments damage the nature dangerously?
4	Should there be limitations on economic growth in order to prevent destruction of the nature?
5	Are developed countries more responsible for environmental pollution and destruction of the nature?
6	Do you think this quote is true: "We do not inherit the earth from our ancestors; We borrow it from our children"
7	Is development of personal environmental awareness an important feature for protection of the environment?
8	Are you aware of activities of environmental club of your school?
9	Do you recognize environmental non-governmental organizations?

- |           |   |
|-----------|---|
| <b>10</b> | Do you know government agencies that deal with protection of the environment? |
| <b>11</b> | Have you ever participate in an environmentalist group or organization?       |

Students' environmental awareness and participation levels to environmental organizations/activities have been determined by Environmental Awareness and Active Participate Scale (EAAPS). EAAPS is a 5-point Likert-type scale consisting of 11 questions. First 7 questions of 11 measured environmental awareness of students whereas rest of the questions determined participation levels to environmental organizations/activities. Answers were arranged such that "Strongly Disagree" is 1 point and "Strongly Agree" is 5 point. In this case, 11 and 55 points are minimum and maximum points available in the survey.

## 2. Results and Discussion

Information about demographic family structures of students participating in the study is given in Table 2. As seen in Table 1, 56,5% of the students (113 student) are female and 43,5% of the students (87 students) are male. Parents of schools A and B have close income levels both surpassing parent income levels of school C. Parents of school C that have an annual income level lower than 8400 \$ are classified as low-income families. 78% of families in school C are low-income families. Most of the families in the study consist of 4 or less family members. Parent educational levels of school B are highest as well as mother educational levels. 40,8% of mothers of school B are university graduate and 49,3% of them work besides being housewives. Mothers of school C do not have university education and 95,2% of them are housewives. Father educational levels of school A are highest. When occupations of parents are evaluated, it is seen that majority of parents of schools A and B are government officer or artisan. Parents of school C are mostly worker or artisan.

Table 2. Information about students and their families participating in the study.

	School A (%)	School B (%)	School C (%)	Average				
<b>Female</b>	55,9	57,8	55,4	56,5				
<b>Male</b>	44,1	42,2	44,6	43,5				
<b>Family Members</b>								
<b>≤ 4 member</b>	50,0	84,2	68,6	71,6				
<b>5-6 member</b>	46,9	14,6	28,9	26,4				
<b>≥7 member</b>	3,1	1,2	2,5	2,0				
<b>Parental Income</b>								
<b>Low (≤ 8400 \$/year)</b>	3,1	6,3	78,0	35,0				
<b>Average (8400-15600 \$/year)</b>	31,3	32,6	19,5	27,5				
<b>High (≥ 15600 \$/year)</b>	65,6	61,1	2,5	37,5				
<b>Parent Education Levels</b>								
	<b>Mother</b>	<b>Father</b>	<b>Mother</b>	<b>Father</b>	<b>Mother</b>	<b>Father</b>	<b>Mother</b>	<b>Father</b>
<b>Uneducated</b>	5,9	-	-	-	1,2	1,2	1,5	0,5
<b>Literate</b>	5,9	2,9	2,5	1,3	3,7	4,9	3,6	3,1
<b>Primary Education</b>	20,6	2,9	16,0	7,5	80,5	51,9	43,7	25,1
<b>Secondary Education</b>	38,2	26,5	40,7	30,0	14,6	38,3	29,4	32,8
<b>University</b>	29,4	67,7	40,8	61,2	-	3,7	21,8	38,5
<b>Parental Occupational Groups</b>								
	<b>Mother</b>	<b>Father</b>	<b>Mother</b>	<b>Father</b>	<b>Mother</b>	<b>Father</b>	<b>Mother</b>	<b>Father</b>
<b>Government Officer</b>	17,6	50,0	31,3	39,5	-	7,2	16,0	27,8
<b>Worker</b>	-	-	1,2	12,3	-	37,3	0,5	20,7
<b>Administrator</b>	-	-	-	3,7	-	-	-	1,5
<b>Farmer</b>	-	2,9	-	2,5	-	-	-	2,5
<b>Artisan</b>	8,8	41,4	3,6	18,5	4,8	40,9	5,0	31,9

<b>Retired</b>	2,9	5,9	12,0	23,5	-	9,6	5,5	14,6
<b>Not Working</b>	70,7	-	50,7	-	95,2	-	72,5	-
<b>Dead</b>	-	-	1,2	-	-	2,4	0,5	1,0

In this study, environmental education in schools, methods of education and how students make use of this education were investigated. Also it is questioned whether the schools have efforts to raise environmental awareness of local community. In this context, following questions were presented to students:

- If there were an independent environmental course in your school, would you like it to be elective or compulsory?
- What kind of techniques should employed in your lessons in order to teach you environmental attitudes?
- How well do you take advantage of environmental education in your school?
- Are there any activities in your school aiming to inform local people about environmental problems (soil erosion, air pollution, solid wastes, radiation etc.) threatening natural structure of where you live?

Answers to these questions revealed that students were not eager for a compulsory environmental course. 63% of the students wanted an elective environmental course while 21% of the students did not mention any opinion. Most popular teaching methods were “practice in environmental laboratory” and “discussion-presentation” among students. 62,2% of the students think that they never or barely make use of environmental education. Less than half of the answers (46,1%) mentioned efforts of schools to raise environmental awareness of local community. These results might indicate that these kinds of activities do not take place frequently or students are not informed or involved. The study included questions about students’ relevance towards environmental problems. They were questioned about how they use mass media (i.e. audio, printed and visual media) to be aware of environmental issues. Role of mass media on building environmental awareness is analysed. In this context, following questions are presented:

- How many hours do you watch TV every day on average?
- Do you try to follow publications and broadcasts about environmental issues?
- Do you think that mass media (newspaper, radio, TV etc.) can sufficiently inform people about environmental problems?
- Do you think that mass media (newspaper, radio, TV etc.) has contributed to development of your environmental awareness?

Previous studies in Turkey indicated that children are notably independent on watching TV. Same studies pointed out that children and adolescents at the ages of 6-17 watch an average of 3-4 hours of TV every day [16]. Similar results are observed in this study. 47,9% of the students watch 1-2 hours, 33,2% of the students watch 2-3 hours of TV. 35% of the students think that they follow environmental issues on mass media “sufficiently”. When answers of “a bit more” and “pretty much” are added, this ratio increased up to 61,4%. Students mentioned the importance of mass media on their experiences about environment. “Sufficiently”, “a bit more” and “pretty much” answers given to last question (contribution of mass media to development of environmental awareness) summed up to 73,2%. EAAPS scores of the students’ in the study are shown in Table 3.

Table 3. Environmental Awareness and Active Participate Scale (EAAPS) score distributions.

		<b>Studen t</b>	<b>Score</b>	<b>St. Dev.</b>
<b>1</b>	Do you think that you have sufficient information about environmental problems?	199	2,55	1,27
<b>2</b>	If people keep producing and consuming like this, would there be a serious raw material shortage?	198	4,16	1,26
<b>3</b>	Have economic growth and technological developments damage the nature dangerously?	197	3,82	1,39
<b>4</b>	Should there be limitations on economic growth in order to prevent destruction of the nature?	196	3,28	1,49
<b>5</b>	Are developed countries more responsible for environmental pollution	199	3,24	1,49

and destruction of the nature?

6	Do you think this quote is true: “We do not inherit the earth from our ancestors; We borrow it from our children”	199	4,33	1,21
7	Is development of personal environmental awareness an important feature for protection of the environment?	200	4,10	1,28
8	Are you aware of activities of environmental club of your school?	197	1,51	1,06
9	Do you recognize environmental non-governmental organizations?	200	1,97	1,12
10	Do you know government agencies which deal with protection of the environment?	198	2,49	1,23
11	Have you ever participate in an environmentalist group or organization?	200	1,79	1,06

EAAPS scores related with participation in environmental activities in schools and environmentalist groups outside school are below 2. Students do not take part in environmental organizations and they have limited information about them. Score from the phrase “Development of personal environmental awareness is an important feature for protection of the environment” is very high. Questions that are indicators of environmental awareness gave similar results which prove presence of a high level of environmental awareness. It is expected that individuals with a high level of environmental awareness will eagerly participate in environmental activities. However, some students in this study have a very low level of active participation. Thus, environmental awareness does not lead to active participation or in other words does not turn into environmental attitudes. Investigation of EAAPS scores relative to demographic and socio-economic levels of families will be helpful on interpretation of above mentioned results. Scores are calculated and presented in Table 4.

Table 4. EAAPS scores of students according to demographic and socio-economic levels.

PARAMETER		Number of students	Average Score	Standard Deviation
<b>Gender</b>	Female	113	34,08	6,12
	Male	87	31,54	8,81
<b>Parental Income</b>	Low ( $\leq$ 8400 \$/year)	66	32,85	5,45
	Average (8400-15600)	52	35,89	7,24
	High ( $\geq$ 15600 \$/year)	71	34,68	9,03
<b>Family Members</b>	$\leq$ 4 member	141	33,30	7,78
	5-6 member	51	33,29	7,22
	$\geq$ 7 member	4	21,67	9,50
<b>Mother Education</b>	Uneducated	3	27,00	7,55
	Literate	7	28,57	5,88
	Primary Education	86	32,30	6,48
	Secondary Education	58	32,50	8,66
	University	43	36,33	7,22
<b>Father Education</b>	Uneducated	1	34,00	-
	Literate	6	33,17	4,92
	Primary Education	49	31,59	6,22
	Secondary Education	64	32,55	8,21
	University	75	34,41	7,91
<b>Occupation of</b>	Government Officer	32	37,84	7,12
	Worker	1	36,00	-
	Artisan	3	26,33	6,11
	Retired	11	32,73	4,92
	Not Working	145	32,06	7,29

	Freelancer	7	35,14	6,82
	Dead	1	15,00	-
<b>Occupation of</b>	Government Officer	55	34,51	7,24
	Worker	41	33,73	5,23
	Administrator	3	36,00	6,24
	Artisan	45	29,67	7,93
	Farmer	5	35,20	12,70
	Retired	29	32,45	7,54
	Freelancer	18	34,06	8,47
	Dead	2	33,00	-

As seen in Table 4, average EAAPS scores of girls are higher than scores of boys. It can be inferred that environmental awareness and active participation levels of girls are higher. Similar results have been obtained by several researchers [1, 5, 9].

In general, as family income increases, EAAPS scores increases. Yet families of average income level have slightly higher scores. There is not a significant relationship between number of family members and EAAPS scores (Scores of students having 7 or more family members are out of consideration because number of such students is very low). It is determined that as mother education level increases, EAAPS scores increase significantly. A previous study states a similar relationship between woman education level and environmental awareness level. Analogous results are also valid for father education level. In the meantime, average EAAPS score of students whose mother is a university graduate (36,33), outnumbers average score of students whose father is a university graduate (34,41). This proves once again the influence of mother on attitudes and behaviours of children.

The number of parents from certain occupations are low (for mother: worker, artisan, freelancer; for father: administrator and farmer) and they were left out of consideration. On this occasion, EAAPS scores of low status jobs appear to be low. Students living in the city centre have a higher level of environmental awareness as compared to students living in suburbs or rural areas. This can be interpreted as an expected result from the survey.

### 3. Conclusion

Results of this research highlighted that although students had a high level of environmental awareness this gains did not turn into active participation and led them to environmental attitudes. In this context, education at school and mass media appear to be key tools. Environmental rights and responsibilities should be adopted at school and followed by applied training models aiming environmental attitudes and behaviours. Curriculum of schools must be arranged at this stage. Effects of arrangements made on Science and Technology lesson curriculum for 2013-2014 school years should be observed. These arrangements should be revised in case of unsuccessful results. Besides, visual media should be employed to effectively support curriculum of schools.

### References

- Aydın F., Kaya H., (2011) "Evaluation of Social Sciences High school Students' Sensitivity towards Environment". *Marmara Geographical Review*, 24 (2): 229-257. (in Turkish)
- Shobeiri SM., Omidvar B., Prohallada NN., (2007) "A Comparative Study of Environmental Awareness among Secondary School Students in Iran and India". *International Journal of Environmental Research*, 1(1): 28-34.
- Yılmaz Ö., Andersen, HO., (2004) "Views and Elementary and Middle School Turkish Students towards Environmental Issues". *International Journal of Science Education*, 26(12):1527-1546.
- Sağır UŞ., Aslan O., Cansaran A., (2008) "The Examination of Elementary School Students' Environmental Knowledge and Environmental Attitudes with Respect to the Different Variables". *Elementary Education Online*, 7(2): 496-511.

- Atasoy E., Ertürk H., (2008) “İlköğretim Öğrencilerinin Çevresel Tutum ve Çevre Bilgisi Üzerine Bir Alan Araştırması”. *Erzincan Eğitim Fakültesi Dergisi*, 10(1): 105-122. (in Turkish)
- Gökçe N., Kaya E., Aktay S., Özden M., (2008) “İlköğretim Öğrencilerinin Çevreye Yönelik Tutumları”. *İlköğretim Online*, 6(3): 452-468. (in Turkish)
- Aydın F., Çepni O., (2010) “University Students’ Attitudes towards Environmental Problems: A Case Study From Turkey”. *International Journal of the Physical Sciences*, 5(17): 2715-2720.
- Coşkun M., Aydın F., (2011) “Geography Teacher Candidates’ Perceptions towards the Greenhouse Effect”. *American – Eurasian Journal of Agriculture & Environment Sciences*, 10(2): 290-295.
- Çabuk B., Karacaoglu C., (2003) “Üniversite Öğrencilerinin Çevre Duyarlılıklarının İncelenmesi”. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, 36: 189-198. (in Turkish)
- Yılmaz A., Morgil İ., Aktuğ P., Göbekli İ., (2002) “Ortaöğretim ve Üniversite Öğrencilerinin Çevre, Çevre Kavramları ve Sorunları Konusundaki Bilgileri ve Öneriler”. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 2: 156-162. (in Turkish)
- Uzun N., Sağlam N., (2007) “The Environmental Education in Secondary School and Teachers’ Opinions on Environmental Education Programs”. *Eurasian Journal of Educational Research*, 26: 176-187.
- Şahin K., Gül S., (2009) “Ortaöğretim Öğrencilerinin Çevre Bilgisi, Davranışı ve Duyarlılıklarının Araştırılması: Samsun Örneği”. *Kastamonu Eğitim Dergisi*, 17(2): 541-556. (in Turkish)
- Yardımcı E., Kılıç GB., (2010) “Children’s views of environment and environmental problems”, *Elementary Education Online*, 9(3): 1122-1136.
- Meydan A., Doğu S. (2008) “İlköğretim İkinci Kademe Öğrencilerinin Çevre Sorunları Hakkındaki Görüşlerinin Bazı Değişkenlere Göre Değerlendirilmesi”. *Selçuk Üniversitesi Ahmet Keleşoğlu Eğitim Fakültesi Dergisi*, 26: 267-277. (in Turkish)
- Çakar H., Güneş A., Erdoğan N., (2008) “Investigation into Environmental Awareness of Grade School Students in Bayındır, Izmir”. *International Journal of Agriculture and Environment*, 4(2): 32-46.
- Ministry of National Education, (2007), “İlköğretim Medya Okuryazarlığı Dersi Öğretim Programı ve Kılavuzu”, Medya Okuryazarlığı Dersi Öğretim Programı Komisyonu, Ankara. (in Turkish)