

## The Participation in Ecological Activities and Its Influence on High School Pupils' Attitude towards The Environment: Famagusta Case

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### Abstract

*Problem Statement:* Today's arising environmental and global challenges that are originated from mainly human activities (e.g. rapidly increasing world population together with a similarly fast-growing consumption, raw material, energy shortage, and the failure in the balanced distribution of resources, lack of fresh water supplies and various other social problems) are a chain of problems that disrupt the homeostasis in the ecosystem. Specifically the effect over natural habitats is striking. Although the population of Cyprus is not high and the industry is not highly developed, it still faces environmental problems every day. Since human is the most important factor of the pollution, the insemination of the importance of ecology knowledge and sensitivity into young minds is essential to protect the environment for the next generations. Thus, here we state our research problem as; "what are the attitudes and behaviors of high school students to the environment in a developing country".

*The Purpose of the Study:* In this study, we aimed to identify the knowledge and behaviors of Central-Famagusta high school pupils towards the environment. We also examined the awareness of students towards the environment according to their age, gender as well as the income and the education levels of their families.

*Method:* We conducted a questionnaire and the Environmental Attitude Scale on 574 high school pupils from two different high school grades. Statistical analyses were done by SPSS 17 statistics program. The frequency (f), means and T test and ANOVA were used to analyze the data.

*Findings and Results:* We found that (1) environmental awareness is not affected by the income level of the family (2) participation into environment-related activities with teachers and friends at school has a

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positive effect on students (3) students who participate into environmental activities gain the capacity to transform environmental ideas to behavior and at the same time acquire the conscious of warning others that are damaging the environment.

*Conclusions and Recommendations:*

Our study aims to understand the environmental awareness and behavior of high school students of different age and gender groups that come from different backgrounds. We found that the most effective way of teaching the importance of environmental and ecological problems to younger minds is to provide them environment-related activities where they can take active roles and hands-on experiences. This should be done in collaboration by pedagogues and teachers starting at the first step of the education system.

*Keywords:* High school pupil, Environmental behavior, Environmental thinking, Ecology, Famagusta, North Cyprus

### **Introduction**

The origin of the term “ecology” is not clear; however it was defined by German biologist Ernest Haeckel in 1869 as the study of the natural economics of the interactions within, among and between the organisms (Odum & Barret 2004). Researchers from different disciplines have evaluated the study and research of ecology or the natural habitat from their respective points of view (Şişli, 1980). Some researchers accept ecology as the study of the natural environment where the organisms existed. Another group focuses on the mutual interactions of the organisms. And a third group accepts ecology as the study of structure, characteristics and the interactions between all living organisms (Şişli, 1980). Briefly, ecology is the area of science that studies the interactions between living things and their environment and, incidentally, among themselves (plants-humans, animals-plants, humans-plants etc.) and the reflection of these relations. Moreover, the definition of the ecology has expanded recently with the addition of human studies, the interaction among societies and cultures as well as their relations interactions with the natural environments. Since the geographical point of view focuses on a specific region or environment, briefly ecology is an area of science that studies human and economic activities as a whole (Ünal & Dımsıkı 1999). As being the natural habitats, cities are human ecosystems that cover the interactions between and amongst many natural and cultural factors (Karadağ,2009). Necessary natural environmental conditions like air, soil, water and plants; and required socio-economic growth on transportation, industry, commerce and tourism are interfering together in these areas (Karadağ, 2009).

Under the current global conditions the rapidly-increasing world population together with a similarly fast-growing consumption, raw material and energy shortage plus the failure in the balanced distribution of resources, clean water problems and many other social problems are a chain of problems attributable to the

disruption of balance caused by, in particular, human activities in the ecosystem. Especially, this pressure over natural habitat has been a hot topic of debate recently. Therefore, the infusion of ecology knowledge and responsibility into young minds has become crucial. This issue should be considered and processed in cooperation of pedagogues and all education personnel, starting at the first steps of the educational life. It has been accepted that the knowledge and attitude towards the environmental issues in children are developed in the pre-school years, and this awareness achieved in early ages influence that individual's lifelong consciousness on the environment (Smith, 2001; Taşkın & Şahin, 2008).

Social sciences and geography education have very significant impacts to enhance the attitude and sensitivity of human beings, who themselves are a part of the ecology. Global climate change and its effects that significantly increase every day are discussed by the public more than ever; recycling, renewable (alternative) energy resources and many similar environmental events particularly make the topic more important and delicate. More comprehensive applications should be implemented to develop the environmental awareness of pupils and to make sure that they maintain this awareness throughout their lives. Today's available tools and means will certainly be helpful.

In this study, for the first time in North Cyprus, we performed a survey with the secondary school pupils to analyze their both awareness and responsibility over ecology and/ or their habitats. The aim of the study was to identify the level of environmental and ecological consciousness in the high school level in Cyprus Island. The results of this study revealed the interest, knowledge, awareness of dangers and issues, as well as the impacts of participation into any environmental activities and the skill and ability to translate thoughts and ideas on protecting the environment into action of high school pupils.

## Methods

### *Research Design*

In this study, the Environmental Attitude Scale survey that was prepared and optimized by Sağlam and Uzun in 2006 was applied to the subjects. In addition to this survey, we also asked 11 questions to characterize the subjects and their families. Accordingly, questions about the monthly income of families and professional and educational states of parents were answered.

In the subsequent part the Environmental Attitude Scale (Sağlam & Uzun 2006) survey was performed and the pupils were asked about their knowledge on the definitions of crooked urbanism, erosion, recycling and ozone layer. It should be noted that unplanned urbanization (urban sprawl, in particular, squatting) is not at the level that it is known in large metropolitans in Turkey; that there is not any quality recycling activity not only in Famagusta but throughout North Cyprus and that there are no serious attempts to raise the public awareness about the recycling. For these reasons, the concepts listed above were all explained to pupils briefly during the questionnaire.

*Research Sample*

The subjects of this study were High School Grade 1 and Grade 4 pupils ( $n=574$ ) that were chosen by nonprobability sampling method from five Central-Famagusta high schools that perform different educational methods. These five schools included two vocational schools, two private and one high school. Non-probability method is advantages to understand such complex social phenomena like awareness of environmental issues because of its in-depth qualitative research in small sampling groups (Marshall, 1996; Small, 2009). Among the subjects, 43.5%, the highest portion, were from vocational schools, followed by 30.2% and 26.3% from high schools and private school pupils, respectively (Table 1).

**Table 1**  
*Pupil Numbers and Ratios from High Schools Covered by the Research*

<i>High School</i>	<i>Number of Pupils</i>	
	<i>People</i>	<i>Ratio (%)</i>
Namık Kemal High School	174	30.2
Dr. Fazıl Küçük Industrial Vocational High School	131	22.7
Gazimağusa Business High School	120	20.8
Gazimağusa Turkish Anatolian High School	76	13.7
Eastern Mediterranean College	73	12.6
<b>Total</b>	<b>574</b>	<b>100.0</b>

There is a balanced distribution among 574 pupils in total covered by the poll by their genders: 50.5% of them were girls whereas 49.5% were boys. As to the grades of the secondary education, 327 of the participants (57%) were from the first grade and the rest (43%) were from the fourth grade.

*Research Instrument and Procedure*

In this study, the survey method was implemented as a descriptive research. A questionnaire and a scaling were specifically done during the course hours to determine the attitudes of high-school pupils towards the environment. The questionnaire addressed certain questions to identify the genders of pupils, their grades and educational, professional and income statuses of their parents.

For scaling, the Environmental Attitude Scale (Uzun and Sağlam 2006) as well as an 11-question poll that was prepared specifically for this study was used on secondary education pupils. The scale contains 27 questions in total and was divided into two sub-scales as "Environmental Behavior Subscale" (Suppl. 1) and "Environmental Thinking Subscale" (Suppl. 2). In general 16 out of 27 questions were to be answered as "agree" and the remaining 11 were to be answered as "disagree". These answers were analyzed in 5 categories under the "Environmental Thinking Subscale" as follows: "I fully agree", "I agree", "I partially agree", "I do not agree" and "I do not agree at all". The positive sentences were scored from 1 to 5 points

starting with “Always/ I Fully Agree” category, whereas the negative sentences were scored from 1 to 5 within the same category.

#### *Validity and Reliability*

We conducted a pilot study on 50 students prior to the actual scale. The internal consistency (Cronbach’s  $\alpha$ ) of the scale was calculated as 0.74 in the pilot study.

#### *Data Analysis*

SPSS 17 program was used for the statistical analysis. The means of the answers given by each pupil to the environmental attitude scale were calculated. These points are the sum of the environmental attitude subscale and the environmental thinking subscale. Evaluations were made by using these subscales. In order to identify whether the awareness is effective on the attitude, an independent group test (ANOVA) was applied. In statistical calculations, the level of significance ( $p$  value) was accepted as 0.05.

### **Results**

Personal factors like the monthly income of families and professional and educational states of parents did not have a significant effect on the attitude of the pupils towards the environment. Here the attitude means an inclination attributable to an individual and that regularly shapes up his thoughts, feelings and behaviors with respect to a psychological object. The attitude is not an observable and concrete behavior but is rather a factor that prepares for the behavior.

In the questionnaire, the most striking result concerns whether students participate in any environmental activity. One of the 39 questions in the questionnaire was as follows: “Have you ever taken place in any voluntary environmental activity?” The answers were reviewed by way of different evaluation methods in SPSS 17. Out of 574 students who took the questionnaire, 50.9% answered “yes” whereas 49.1% answered “no”. 31.4% of the pupils stated that they took place in a voluntary environmental activity, making up the broadest segment. 19.5% answered “yes” for off-school activities and this makes up the smallest segment in the sampling. Off-school voluntary participation results showed no statistically significant difference whereas in-school voluntary participation rates that are rather close to each other revealed that there is a significant difference in terms of environmental sensitivity and awareness.

The sensitivity does not cause a difference in “Environmental Thinking” ( $p > 0.05$ ) (Table 2). In addition, “Environmental Behavior” regarding the participation or non-participation in an environmental activity and a study over the average scores reveal a statistically significant difference ( $p < 0.05$ ) where  $M_{yes} = 36.01$  and  $M_{no} = 29.67$ .

**Table 2**

*Analysis of Answers by Pupils Based on Their Participation/ Non-participation in Any Environmental Activity*

	<i>Answer</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Environmental Behavior Subscale	Yes	292	36.01	9.66	8.42	0.001
	No	282	29.67			
Environmental Thinking Subscale	Yes	292	47.79	8.72	-0.05	0.958
	No	282	47.59			
Environmental Attitude	Yes	292	83.82	12.18	6.50	0.001
	No	282	77.25			

When total points scored for the entire scale are reviewed, we observe that those who participate/ do not participate in any environmental activity cause a significant difference over “Environmental Attitude” and that this awareness is rather in favor of the participating pupils ( $M_{yes} = 83.82$ ,  $M_{no} = 77.25$ ). But in general, as shown in Table 2, there is no significant difference between the participating and non-participating pupils when it comes to their environmental thinking.

**Table 3**

*Average Points Scored by Pupils from Sub-scales*

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>V</i>
Environmental Behavior Subscale	574	32.84	9.66	29.41
Environmental Thinking Subscale	574	47.69	8.72	18.28
Environmental Attitude	574	80.59	12.18	15.11

Finally, Table 3 shows the average score of the points assigned by the pupils to environmental behavior and environmental thinking sub-scales. According to a scoring from 1 to 5, maximum and minimum points that could be scored for environmental thinking subscale were 65 and 13, respectively, whereas maximum and minimum points that could be scored for environmental thinking subscale were 70 and 14, respectively. As a result of our questionnaire, variable coefficients ( $V$ ) were evaluated for the scale and the subscales in reliance on standard deviations ( $SD$ ) and arithmetic means ( $M$ ) (Table 3). The fact that all resultant values were below 50% limit reveals that researched groups were rather analogues, and eventually, homogenous.

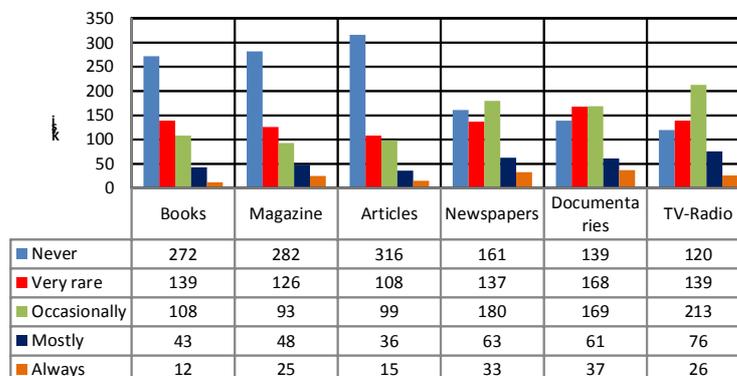


Figure 1. Answers by Pupils to Questions Regarding the Use of Press and Visual Media at the Environmental Behavior Scale

Today, it is widely accepted that audio and visual media have a very significant impact on environmental training (Alim, 2006). Our study showed that, while environmental perception and attitude of students who have participated in any environmental activity affect the students in a positive way; journals, magazines, books and newspapers, in particular, articles have a seriously insignificant impact on their attitude whereas audio and visual media are relatively more effective (Figure 1). Rather than attributing this result to a specific situation unique for Famagusta and TRNC, we see it as the result of widely usage of internet and additionally the decrease of the starting age of the children that use internet. In particular, considering that almost every home has an internet access nowadays, it is obvious that children and teenagers gain awareness due to internet whereas the effect of printed communication vehicles, including books and articles, are relatively decreased.

Answers to Question 18 (“I warn any person who causes damage to the environment without any hesitation”) showed that 28.4% of the pupils answered as “always”, 26.8% answered “mostly”. The rest of the answers were as follows; 21% “sometimes”, 10.8% “rarely” and 13% “never”. These results show that pupils who take active role in environmental activities mostly are prone to warn others. However, students who answered “never” and “rarely” make up a significant proportion of the total subject group (23.8%), which unfortunately indicates that there are some weaknesses in terms of environmental sensitivity and awareness.

### Discussion and Conclusions

In this study, we performed an Environmental Attitude Scale by using the non-probability method to identify the environmental manners of students in first and fourth grades at five different high schools in Central-Famagusta region.

Similar studies that were performed in Turkey have shown a gender difference that is biased towards girls on the awareness of environmental issues. Studies done by Çabuk and Karacaoğlu (2003), Deniz and Genç (2007), and Kaya, Akıllı and Sezek (2009) had similar and parallel results. However, our results showed that there is no gender effect on this matter and awareness was not biased towards any gender.

We found that pupils who participate in environmental activities have higher awareness on environmental issues. As revealed in ANOVA test participation in the environmental activities in or out of school does not have a significant effect. Additionally, pupils participating in environmental activities are more conscious on the environmental problems compared to those who do not take active roles. Pupils who do and do not attend activities both display close averages when it comes to environmental contents offered by press and visual media. Thus, the effect of media on the awareness is important for both groups.

On warning people who cause damage to the environment, pupils who participate in environmental activities are slightly more courageous, and they share and discuss more environmental-related things among themselves. In addition, in terms of voluntary environmental activities and using products causing less damage to the environment, pupils who attend activities are more sensitive compared to those who do not.

In terms of environmental thinking, the fact that there is not any significant difference between two groups and that the average scores are at acceptable levels may indicate that in general pupils have rather developed a positive attitude to the environment. Interestingly, the environmental thinking average score is way above the environmental attitude average. This shows that pupils cannot translate their environmental thoughts into practice and behavior effectively.

In this study, we identified the behavior, attitude and awareness of high school kids towards today's important environmental issues. We addressed some of the crucial aspects like pollution, global warming, recycling, etc. to measure their knowledge. Here in order to increase the awareness in younger generations we propose that (1) since teachers are the most important role-players in education they should be educated better on environmental issues, (2) pupils should benefit from well-trained teachers in this respect in an effective and adequate way, (3) visual communication vehicles should display or air environmental programs more and widely, (4) specialists should increase the awareness of the society by playing more active roles, and (5) environmental education should be integrated throughout the high school curriculum. In addition, it is highly beneficial to insert scouting activities at high schools since North Cyprus has a rich environment in terms of endemic species, events and activities that will be led by researchers from different disciplines. Professionals from various scientific areas like biology, history, archeology, sociology, ecology, etc. should be organized for natural sciences. Encouraging the secondary school pupils to take more active roles in these ecology-based training courses (e.g. camping activities) will be important to increase the awareness. Moreover, on-the-site observations of recycling facilities and renewable products in developed countries are crucial to explain the magnitude of environmental needs of today's world to younger generations since these facilities

are below the radar of the society not only in Famagusta but also throughout the entire country. By doing these we can not only increase the knowledge and awareness of next generations about environmental problems, but also can teach them to translate their thoughts into action to protect their habitats.

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### **Lise Öğrencilerinin Ekolojik Etkinliklere Katılmalarının Çevreye Karşı Tutumları Üzerine Etkisi: Gazimağusa Örneği**

#### **Atf:**

- Erbilin, S.U. (2013). The participation in ecological activities and its influence on high school pupils' attitude towards the environment: Famagusta Case. *Eğitim Araştırmaları-Eurasian Journal of Educational Research*, 53/A, 107-118.

#### **Özet**

*Problem durumu:* Hızla çoğalan dünya nüfusu buna paralel artan tüketim, hammadde ve enerji ihtiyacı, kaynakların dengeli dağıtılamaması, temiz su sorunu ve daha pek çok sosyal problem, başta insan faaliyetlerinin ekosistemde oluşturduğu dengesizlikten doğan problemler silsilesi olarak değerlendirilebilir. Özellikle doğal çevre üzerindeki bu baskı etkisini her geçen gün şiddetlendirerek artırdığından son yıllarda gündemi daha fazla meşgul etmektedir. Çevre sorunlarından kaynaklanan tehditle-

rin azaltılmasında çevre sorunlarını doğru algılayan çevreye duyarlı, sorumlu davranışlar sergileyecek bireylerin yetiştirilmesi önemlidir. Bu nedendir ki yeni kuşaklara ekoloji bilgisi ve duyarlılığı küçük yaşlarda aşılması gereken bir zorunluluk haline almıştır. Bu mesele eğitim - öğretimin ilk basamağından başlamak suretiyle pedagoglar ve tüm eğitimcilerle işbirliğine gidilerek değerlendirilmesi ve de işlenmesi gereken bir konudur.

Kuzey Kıbrıs gelişmiş bir sanayiye ve yoğun bir nüfusa sahip olmamasına rağmen çevre sorunlarıyla gündeğitkçe daha fazla yüzleşmektedir. Hergün yazılı ve görsel medyada başka bir çevre olayı ile karşılaşan lise öğrencilerinin duyarlılığı, bilgi düzeyleri ve farkındalıklarını belirleme bu çalışmanın problem cümlesini oluşturmaktadır..

*Araştırmanın Amacı:* Bu araştırma kapsamında amaçlanan Gazimağusa merkezde bulunan farklı programlarda öğretim yapan beş lisede öğrenim gören farklı yaşlardaki öğrencilerin çevre sorunlarına karşı bilgi düzeyini, tutum ve davranışlarını belirlemektir. Öğrencilerin çevreye yönelik tutumlarında yaş, cinsiyet, aile eğitim düzeyi ve gelir seviyesinin etkisi olup olmadığı da incelenmiştir.

*Araştırmanın Yöntemi:*Çalışmamızda betimsel araştırmada tarama (survey) yöntemi kullanılmıştır. Lise öğrencilerinin çevreye yönelik tutumlarının belirlenmesi amacıyla veri toplama aracı olarak iki bölümden oluşan anket ders saatleri içerisinde 574 öğrenciye uygulanmıştır. Anketin ilk bölümünde öğrencilerin cinsiyetlerini, kaçınıncı sınıfta olduklarını ,anne-babalarının eğitim, meslek ve gelir düzeylerini belirlemeye yönelik sorular sorulmuştur. İkinci bölümde Uzun ve Sağlam (2006) tarafından orta öğretim öğrencileri için geliştirilmiş olan “Çevresel Tutum Ölçeği” kullanılmıştır. Ölçeğin Cronbach Alfa iç tutarlılık kat sayısı yapılan pilot çalışmada 0,74 olarak hesaplanmıştır. Ölçekte “Çevresel Davranış Alt Ölçeği” ve “Çevresel Düşünce Alt Ölçeği” olarak iki alt başlığa ayrılan ve 16’sı olumlu, 11’i olumsuz olmak üzere toplam 27 madde yer almakta ve 5’li Likert sistemiyle değerlendirilmektedir. Verilerin analizinde SPSS 17 programı kullanılmıştır. Her bir öğrencinin çevresel tutum ölçeğine verdikleri cevapların ortalamaları hesaplanmıştır. Bu puanlar çevresel davranış alt ölçeği ve çevresel düşünce alt ölçeğinin toplamından oluşmaktadır. Değerlendirmeler bu alt ölçekler de kullanılarak yapılmıştır. Duyarlılığın tutum üzerinde etkili olup olmadığını tespit edilmesinde bağımsız grup testi (ANOVA) uygulanmıştır. İstatistiksel hesaplamalarda anlamlılık düzeyi 0.05 olarak alınmıştır.

*Araştırmanın Bulguları:* Lise öğrencilerinin çevresel tutum ve çevresel davranışlarını ölçme amacıyla yapılan bu çalışmada, ilk bölümde yer alan kişisel bilgileri içeren anket ile ikinci bölümdeki ölçek sorularına verilen cevaplara bakıldığında görülmüştür ki öğrencilerin yaş ve cinsiyetleri, ailelerinin eğitim ve gelir seviyeleri, çevre bilinçlerinin oluşumuna ve çevreye yönelik davranışları üzerindeki etkisi çok fazla değildir. Çevresel tutumları üzerine en büyük etki okulda arkadaş ve öğretmenleriyle birlikte yaptıkları herhangi bir çevresel faaliyettir. Bu etkinliklere katılan öğrenci hem çevresel düşüncelerini davranışa dönüştürebilmekte hem de çevreye zarar veren birini gördüğünde uyarabilme özelliği kazanmaktadır.

*Araştırmanın Sonuçları ve Önerileri:* Gazimağusa’da lise 1. ve 4. sınıflardaki öğrencilerin doğal çevreye yönelik tutumlarını incelemeyi amaçlayan bu çalışmada, hem duyarlılık hem de davranış faktörleri dikkate alındığında çevresel bir etkinliğe katılan öğrenciler lehine bir sonuç tespit edilmiştir. Çevreye zarar veren kişilerin uyarılması hususunda da çevre ekinliğine katılan öğrencilerin daha cesaretli ve çevre konusunda kendi aralarındaki paylaşımlarının diğerlerine oranla fazla olduğu ortaya çıkan sonuçlardan bir diğeridir. Bunun yanı sıra çevre ile ilgili faaliyetlere gönüllülük ve çevreye daha az zararlı ürün seçimi konularında da katılan öğrencilerin katılmayan öğrencilere göre daha duyarlı oldukları görülmektedir. En önemli nokta; çevresel tutuma ait alt ölçeklerin değerlendirilmesinde karşımıza çıkmaktadır. Öğrencilerin alt ölçeklerden aldıkları puan ortalamaları karşılaştırıldığında; çevresel düşünce puan ortalamasının çevresel davranış puan ortalamasından çok daha fazla olduğu dikkat çekmektedir ki; bu tespit öğrencilerin çevreyle ilgili düşüncelerini tam anlamıyla davranışa dönüştüremediklerinin önemli bir göstergesidir. Çevre koruma bilinci süreklilik arzeden bir süreçtir dolayısıyla eğitimin içerisinde küçük yaşlardan itibaren bu bilincin kazanılması gerekmektedir. Bu amaçla lise müfredatında çevre duyarlılığı bir ünite içinde değil yıl boyunca farklı disiplinler içine dağıtılarak, bu konuda yeterli eğitime sahip öğretmenler tarafından sürekli öğrenciye verilmelidir. Halen Kuzey Kıbrıs’da sürmekte olan izcilik kamplarının daha yoğun katılımı sürdürülmesi, bunun yanında “ekoloji temelli doğa eğitimi” kamplarının düzenlenmeye başlanması ve kendi alanında uzman akademisyenlerin buralarda görev alması sağlanmalıdır. Ayrıca sadece Gazimağusa’da değil tüm ülkede fazlaca dikkat çekilmemiş olan entegre geri dönüşüm tesisleri ve yenilenebilir ürünler ile ilgili gelişmiş ülkelerdeki örnek uygulamalar, yerinde gözlenerek bir farkındalık yaratılabilir. Beşeri kaynaklı çevre sorunlarını yine insanların duyarlı davranışları ile azaltabileceğimiz veya önleyebileceğimiz için yeni nesillerin düşünceleri davranışa dönüştürmeleri gerekmektedir. Dolayısıyla içinde buldukları eğitim kurumları gerek ders içi gerekse ders dışı etkinliklerle bu ihtiyaca cevap verecek, öğrencilerin bizzat içinde yer aldığı liderlik ettiği programlar düzenlemelidir.

*Anahtar sözcükler :* Gazimağusa, çevresel davranış, ekolojik etkinlik, çevresel düşünce