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# Examination of Environmental Awareness of Students Studying in Landscape Architecture Departments

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| ARTICLE INFO | ABSTRACT |
|---|---|
| | The discipline of landscape architecture plays an important role in many environmental issues such as increasing green areas in urban areas, supporting biodiversity, and managing water resources. This study was conducted to determine the environmental awareness levels of landscape architecture students in Turkey and to understand how educational programs affect this awareness. In the study, first of all, all universities and faculties providing undergraduate landscape architecture education in Turkey were examined, and then landscape architecture departments in different universities and faculties were included in the scope of the research. Surveys were administered to students studying in the landscape architecture departments of the specified faculties to measure their environmental awareness levels. In addition, it was analyzed how the courses taken by landscape architecture students affected their environmental awareness. Thus, effective strategies were developed and suggestions were presented to increase environmental awareness in landscape architecture education. |

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## Introduction

Environment refers to the biological, physical, social, economic and cultural environment in which living things maintain their relationships and interact with each other throughout their lives (Anonymus, 2024g).

According to Keleş et al. (2015), environment, as a concept, refers to the mutual relations that people establish with each other, the mutual interactions of people throughout these relations, and the relations and interactions of people with animals and plants.

The environment is examined as a living environment and a nonliving environment, but it is also possible to examine the environment as a physical environment and a social environment depending on its quality. The environment in which living things live and can physically perceive its existence and quality is called the "physical environment". The physical environment is also divided into "natural" and "artificial" environments (Tıraş, 2012). According to Kışlalıoğlu (1989), the natural environment is defined as all natural entities that humans have no contribution to their formation, that is, that are not touched by human hands or changed by humans. Humans, soil, water, air, plant and animal communities are parts of the natural environment. All entities such as houses, roads, cities that have been built by humans using the natural environment since the existence of humanity are also defined as artificial environments (Erol, 2005).

Environmental problems can be defined as the negative consequences that arise from human intervention in nature and the use of nature to meet their unlimited needs (Zengin and Esedov, 2010).

Although the concept of environmental awareness has many different areas of use, the area where it shows itself most intensely today is politics. The aim of environmental awareness, as many scientists emphasize, is environmental knowledge, attitudes towards the environment and behaviors beneficial to the environment (Ertan, 2004).

Environmental awareness is a way of thinking that people need to have in order to both prevent environmental problems and protect the environment. Environmental awareness basically requires being aware of the environment and being able to act in harmony with it (Nazlıoğlu, 1991). Environmental awareness means that the individual gains his/her natural environment as a society, acquires environmental sensitivity, defends his/her rights in solving environmental problems and takes initiatives to show his/her reaction, understands the need to

use the environment without destroying it, and prioritizes saving in all consumption habits (Kızılaslan and Kızılaslan, 2005). Environmental awareness is an important indicator of human attitudes and behaviors towards environmental problems and supports living in a healthy and balanced environment (Çolakoğlu, 2010). Individuals with environmental awareness have adopted the concept of conscious consumption and environmentally friendly production in order not to harm the environment, to exhibit environmentally beneficial behaviors and to solve environmental problems (Çifci and Şakacı, 2015). This understanding, when put into practice and transformed into behavior, is accepted as an indicator of environmental awareness. The most basic way to solve environmental problems is to provide serious environmental education to all individuals in society and to gain environmental awareness. A positive change in approaches to the environment increases people's environmental awareness (Şafak and Erkal, 1995).

### Landscape Architecture Education in Turkey

Landscape architecture education is a discipline that began at Harvard University in the 1900s and has now spread across the world, beyond America, Europe, and Asia. Therefore, the scope of landscape architecture and its importance within other disciplines have changed according to various approaches, events, and changing perspectives (Güzel and Erdem Kaya, 2020).

In the historical process where landscape architecture education is rapidly advancing in the world, the beginning of landscape architecture education in Turkey is accepted as 1968-Ankara University (Uzun and Kesim, 2008). In this period when the ecological approach was newly accepted on a global scale, in our country, it was founded on the basis of plant knowledge and production education in the "Forestry and Agriculture" faculties where agriculture and horticulture were at the forefront. During this period, the fact that landscape architects were educated in the agricultural engineering department and that the approaches of the faculties they were in were different from the universal approach of the period, rather than the design scale of landscape architecture education, it was based on learning natural and cultural systems (Ortaçeşme et al., 2014).

In our country, as of 1994, the discipline of architecture has reached a widespread influence within landscape architecture, and the educational structure within the faculties of architecture, fine arts and engineering has become diverse (Uzun et al., 2019). The inclusion of the Landscape Architecture program in the Faculty of Architecture has brought different dimensions to the design and planning approach in landscape architecture education by associating the discipline with construction, materials, and building as well as natural sciences (Güzel and Erdem Kaya, 2020).

The proliferation of architecture faculties in our country and the inclusion of landscape architecture departments within architecture faculties are realized through the orientation of landscape architecture education towards diverse, global-scale, interdisciplinary educational approaches that can respond to the multifaceted needs of 21st century cities (Atanur et al., 2020).

In the history of landscape architecture education in our country, it has been determined that interdisciplinary approaches could not be developed around the same principles within different faculties and that there were deep disagreements (Kaplan, 2000). However, with the signing of the Bologna Convention in 2001 (Akıncı and Karaçor, 2010) and the establishment of the Council of Landscape Architects Department Heads in 2009, common approaches, decisions and studies in landscape architecture education began to develop (Anonymus, 2024h).

The purpose of this study is to determine the environmental awareness levels of students studying in landscape architecture curriculum and to understand the factors affecting this awareness. Landscape architecture is a discipline that aims to understand and balance the interactions between the natural and artificial environment. In this context, examining the environmental awareness levels of students is of critical importance in terms of producing sensitive solutions to environmental problems in their professional practices.

## Materials and Methods

### Materials

This research was conducted on 6 faculties that provide landscape architecture education in our country. There are 6 faculties that provide landscape architecture education in Turkey. These faculties are: Faculty of Fine Arts, Faculty of Architecture, Faculty of Architecture and Engineering, Faculty of Architecture and Design, Faculty of Forestry and Faculty of Agriculture. In this context, the universities that will participate in the research were determined as Kırıkkale University Faculty of Fine Arts, Süleyman Demirel University Faculty of Architecture, Hacı Bektaş Veli University Faculty of Architecture and Engineering, Selçuk University Faculty of Architecture and Design, Çankırı Karatekin University Faculty of Forestry and Ankara University Faculty of Agriculture.

Kırıkkale University Faculty of Fine Arts: The Department of Landscape Architecture, affiliated to the Kırıkkale University Faculty of Fine Arts, was established on 08.02.2017 after being deemed appropriate to be opened by the Council of Higher Education (Anonymus, 2024a).

Süleyman Demirel University Faculty of Architecture: The Department of Landscape Architecture, which started its undergraduate education in the Faculty of Forestry in the 2007-2008 academic year, was transferred to the Faculty of Architecture with its students on 19.06.2014 by the Council of Higher Education (Anonymus, 2024b).

Hacı Bektaş Veli University Faculty of Architecture and Engineering: The Faculty of Engineering and Architecture was established by the Ministry of National Education on 25.12.2009. The Department of Landscape Architecture was established in the Faculty of Engineering and Architecture on 14.04.2010 (Anonymus, 2024c).

Selçuk University Faculty of Architecture and Design: The department started its undergraduate education in the Faculty of Agriculture in 2011. It has been providing education in the Faculty of Architecture and Design since 2020 (Anonymus, 2024d).

Çankırı Karatekin University Faculty of Forestry: The Faculty of Forestry was established on 24.08.1994 by the decision of the Council of Ministers as a part of Ankara

University and started its activities in the 1996-1997 academic year. On 29.05.2007, with the establishment of Çankırı Karatekin University, the faculty name and affiliation were changed and it was connected to Çankırı Karatekin University (Anonymus, 2024e).

Ankara University Faculty of Agriculture: Landscape Architecture education in Turkey began as the "Ornamental Plants Branch" within the Higher Institute of Agriculture, which was established in 1933. With the establishment of Ankara University in 1946, the Faculty of Agriculture within this institution continued its activities under the name of "Garden Architecture and Afforestation Department". As a result of the increasing interest in the environment and landscape, the Department of Landscape Architecture was established in 1968 as one of the 10 departments of the Faculty of Agriculture (Anonymus, 2024f).

### *Methods*

This research was conducted with landscape architecture students studying at 6 different universities and faculties in Turkey. 303 people participated in the survey. The surveys were conducted via Google Forms. The survey included 25 questions and used a 5-point Likert scale (Güngör, 2022).

Firstly, the universe and sample size were determined and according to this situation, it was revealed how many students should be surveyed at least. According to Anonymus (2024), if a 95% confidence level is desired in a universe size of 500 people, the sample size should be at least 222 people. The total number of landscape architecture students studying in these faculties within the scope of the research is 682. Therefore, the universe size was calculated as 682 and the sample size as 303.

The data obtained in the study were analysed using SPSS 25.0 for Windows (Statistical Package for Social Sciences) software.

The reliability of the questionnaire scales prepared according to the predetermined scale type was measured by Cronbach's Alpha reliability coefficient. In the study, Cronbach's Alpha reliability values higher than 0.80 in both scales indicate that the questionnaire has an acceptable, good level of reliability (Baker, 1991; Cronbach, 1951).

The suitability of continuous variables for normal distribution was evaluated using the Shapiro-Wilk test. As a result of the test, it was determined that the data came from the normal distribution family.

Independent t-test was used for the comparison of numerical data between two independent groups and One-way ANOVA test was used for more than two independent groups.

The relationship between continuous variables was tested by Pearson correlation analysis. As a result of the analysis, the degree, magnitude and direction of the relationships between the variables were evaluated with Pearson correlation coefficient (r).

While interpreting the results of the analyses, the error was kept at the level of 0.05 and thus the decisions were made at 95% confidence level.

### Results

The questionnaire consists of three parts. In the 1st part, demographic questions, in the 2nd part, questions were asked to measure the level of environmental sensitivity of students, and in the 3rd part, questions were asked to measure the contribution of landscape architecture education given to students in faculties to environmental sensitivity.

### *Demographic Characteristics of the Participants in the Survey*

The survey was applied to students studying in 6 different education programs via Google Forms. A total of 303 landscape architecture students participated in the survey. 69 students from Ankara University, 51 students from Çankırı Karatekin University, 41 students from Hacı Bektaş Veli University, 39 students from Kırıkkale University, 52 students from Selçuk University, and 51 students from Süleyman Demirel University participated in the survey.

Of the students who participated in the survey, 175 (57.8%) were female and 128 (42.2%) were male. 99 (327%) of the participants were in the 18-20 age group, 161 (53.1%) were in the 21-23 age group and 43 (14.2%) were in the 24 and over age group. Of the participants, 67 (22.1%) were 1st grade, 83 (27.4%) were 2nd grade, 98 (32.3%) were 3rd grade and 55 (18.2%) were 4th grade students.

### *Results of the Survey Study*

The reliability values of the 2nd and 3rd part survey scales used in the study are as explained below:

Cronbach's Alpha value for the 2nd part scale was determined as 0.839. The reliability of the scale was determined as 'good' in the literature scale. The items of the 2nd part questionnaire were found to be homogeneous and related to each other (F=43.796, p<0.0001). It was also found that the test was retractable (F=1.139, p=0.151). For the 2nd part questionnaire, Hotelling's T-Squared Test was performed to determine whether the test design was appropriate in terms of reliability analysis applications and according to the test results, it was found that the model was appropriate (F=26.026, p<0.0001).

For the 3rd part scale, Cronbach's Alpha value was found to be 0.815. The reliability of the scale was determined as 'good' in the literature scale. It was determined that the items of the scale in question were homogeneous and related to each other and that the test was summable (F=36.017, p<0.0001; F=2.458, p=0.117). In terms of the 3rd part scale's Reliability Analysis applications, it was also determined by Hotelling's T-Squared Test that the test design had an appropriate structure (F=37.761, p<0.0001).

In line with the results obtained, it was seen that the scales and their sub-factors fulfil the reliability conditions accepted in the literature and that their internal consistency is acceptable independently. The following table summarises the findings of the Reliability Analysis described above (Table 1).

Table 1. Reliability Analysis Findings of Part 2 and 3 Questionnaire Scales

| | | | | | |
|---|---|---|---|---|---|
| Part 2 and 3 Survey Scales Reliability Analysis Findings | | | | | |
| Scales | Average | Standard Deviation | Cronbach Alpha | Relationship Between Items | Test Collectability |
| Part 2 Questionnaire | | | 0.839 | F=43.796; p<0.0001* | F=1.139; p=0.151 |
| Hotelling T$^2$ | F=26.026; p<0.0001* | | | | |
| Part 3 Questionnaire | | | 0,815 | F=36,017; p<0.0001* | F=2.458; p=0.117 |
| Hotelling T$^2$ | F=37.761; p<0.0001* | | | | |

*; It represents the findings obtained at 95% confidence level.

Table 2. Correlation Analysis

| | Average | Std. Dev. | Part 2 Questionnaire | Part 3 Questionnaire |
|---|---|---|---|---|
| Part 2 Questionnaire | 55.554 | 7.591 | 1 | |
| Part 3 Questionnaire | 44.963 | 5.811 | 0.452* | 1 |

Table 3. Students' Environmental Awareness Scale - Gender Comparison

| Students' Sensitivity to the Environment | | Sample Volume (n) | Average | Std. Dev. | t-value | p- value |
|---|---|---|---|---|---|---|
| Gender | Female | 175 | 55.605 | 6.962 | 0.137 | 0.891 |
| | Male | 128 | 55.484 | 8.401 | | |

Comparison was made with Independet Sample T-test. *α=0.05

Table 4. Students' Environmental Awareness Scale - Age and Class Comparison

| Students' Sensitivity to the Environment | | Sample Volume (n) | Average a | Std. Dev. | F- value | p-value | Group differences |
|---|---|---|---|---|---|---|---|
| Age | between 18 and 20 | 99 | 54.191 | 7.869 | 7.767 | 0.001* | a |
| | between 21 and 23 | 161 | 55.341 | 7.317 | | | ab |
| | 24 years and older | 43 | 59.488 | 6.737 | | | bc |
| Class | 1. Class | 67 | 55.432 | 8.251 | 3.141 | <0.026* | ab |
| | 2. Class | 83 | 55.686 | 7.380 | | | ab |
| | 3. Class | 98 | 54.143 | 7.266 | | | bc |
| | 4. Class | 55 | 58.018 | 7.184 | | | a |

Multiple comparisons were made with Oneway ANOVA test and pairwise comparisons were made with Tukey test. In group comparisons; there are statistically significant differences between groups with different letters. *α=0.05

In the 2nd part of the questionnaire, questions were asked to measure the level of students' sensitivity towards the environment, and in the 3rd part, questions were asked to measure the contribution of landscape architecture education given to students in faculties to environmental sensitivity. Correlation analysis was performed to determine whether there is a significant relationship between students' sensitivity towards the environment and the contribution of landscape architecture education given to students in faculties to environmental awareness.

In the table, information about the correlation relationships (correlation coefficient) and the mean ± standard deviation values of the scales for the 2nd and 3rd part survey scales applied to the students participating in the research are reported. The correlation relationship investigated and the summarised mean values were carried out over the scores of the 2nd and 3rd part survey sub-dimensions, and these scores were created based on the data obtained from the applied questionnaires. * represents the findings obtained at 95% confidence level.

Table 2 summarises the results of the correlation analysis of the 2nd and 3rd part survey scales. According to the table, the results are as follows:

There is a positive correlation with a coefficient of 0.452 between students' sensitivity towards the environment and landscape architecture education given to students in faculties. A one-unit increase in the score of the landscape architecture education scale given to the students

in faculties provides an increase of 0.452 units in the students' environmental sensitivity level score (r=0.452 and p<0.001).

The findings related to the gender comparison of the environmental sensitivity scale of the students are explained in Table 3. The results obtained are as follows:

While the environmental awareness scores of female students were determined as 55.605 ± 6.962, the average value of male students was determined as 55.484 ± 8.401. The environmental sensitivity of female students was slightly higher than that of male students. However, this situation did not create a statistically significant difference between the groups.

The environmental awareness scores of female and male students were statistically similar (p=0.891>0.05).

The findings related to the differences between the environmental awareness scale scores of the students and their age and faculty classes are given in Table 4. The results are as mentioned below:

While the environmental awareness scores of the students aged 18-20 were determined as 54.191 ± 7.869, those of the students aged 21-23 were determined as 55.341 ± 7.317. The average environmental awareness score of students aged 24 years and older was 59.488 ± 6.737. In the results obtained, it was determined that the environmental sensitivity of the students showed statistically significant differences according to their age (p=0.001<0.05).

The differences observed according to age groups are due to the fact that the environmental awareness scores of students aged 18-20 are statistically significantly lower than those of students aged 24 and older. It was determined that the environmental awareness scores of the students aged between 21-23 years were similar to those of the students aged 18-20 years and 24 years and older.

The environmental awareness scores of the 1st grade students were $55.432 \pm 8.251$, 2nd grade students were $55.686 \pm 7.380$, 3rd grade students were $54.143 \pm 7.266$. The 4th grade students' environmental awareness score was observed as $58.018 \pm 7.184$ on average. In the results obtained, it was determined that the environmental sensitivity of the students showed statistically significant differences according to the classes they were in ($p=0.026<0.05$).

The differences observed according to the grades of the students are due to the fact that the environmental awareness scores of the 4th grade students are statistically significantly higher than the 3rd grade students. It was determined that the environmental awareness scores of the other class students were similar.

## Conclusion

The results of the survey show that most of the students studying in the department of landscape architecture are sensitive to the environment. It was also concluded that the landscape architecture education given in faculties contributes to the environmental awareness of students.

The majority of the students participating in the research stated that they were sensitive to the environment and that they grew up in an environmentally sensitive family. Although the majority of students have sufficient knowledge on issues such as global warming and climate change, there are also students who do not have sufficient knowledge. Students who prefer to buy products with recycling signs on the packaging and students who throw the wastes into the appropriate recycling bins so that they can be recycled constitute the majority. Students who have previously participated in activities, programmes, congresses or petitions related to environmental protection, nature conservation, etc. constitute approximately half of the students surveyed. The students stated that they aim to protect the environment while carrying out landscape planning and landscape design studies and that they do not want to interfere with the natural landscape while implementing these planning/design projects. In addition, students also stated that they received adequate education on environmental problems, environmental ecology, environmental awareness and consciousness in their faculties. The students stated that they would be able to carry out environmentally sensitive design and planning studies with the education they received after graduation.

The environmental awareness of the students varied depending on the demographic characteristics such as gender, age and grade level. It was determined by statistical analyses that female students and 4th year students had higher levels of environmental awareness. In addition, although landscape architecture departments are located in different faculties, the environmental awareness of landscape architecture department students studying at different universities is statistically similar because their education curricula are similar.

When the results of the research are analysed, it is concluded that most of the landscape architecture students are sensitive about environmental issues. Considering the students who do not have high environmental sensitivity and awareness, the following suggestions have been developed.

## Recommendations

In line with the findings of this study, the following suggestions were made to increase the environmental awareness of landscape architecture students. Landscape architecture curriculums should be revised to place greater emphasis on environmental issues. These revisions should include adding new courses that include environmental awareness and sustainability concepts, and updating existing courses with environmentally focused content.

Educational programs should be designed to help students understand environmental issues more deeply and provide practical experiences. In this context, the integration of various practical applications such as field studies and projects is important.

Seminars, congresses and events related to the environment should be organized in order to increase the environmental awareness of students.

In order to encourage students to learn and apply environmental awareness and sustainability issues in depth, they should be supported with environmental awareness-focused projects. Environmental awareness-focused projects can contribute to students developing a sensitive and solution-oriented approach to environmental problems by providing them with the opportunity to apply their theoretical knowledge in practice.

Landscape architecture education programs should encourage interdisciplinary approaches to understanding and solving the complexities of environmental problems. This encouragement can enable students from different disciplines to come together to address environmental problems and bring together diverse perspectives to produce more comprehensive solutions.

The developed suggestions can increase the environmental awareness of landscape architecture students and enable them to approach environmental problems in a more sensitive and conscious manner. Thus, they can develop their career studies after graduation in line with the principles of environmental sustainability.

## Declarations

### Ethical Approval Certificate
The experimental procedures of this study were approved by the Faculty of Architecture and Design Scientific Ethics Committee of Selcuk University. (Approval date and number: 19.03.2024/No: 02).

### Author Contribution Statement
All contributions belong to Ruhugul Ozge Gemici.

# References

Akıncı, K.G., Karaçor, E.K. (2010). Bologna sürecinde peyzaj mimarlığı öğretiminin ana konularının belirlenmesine ilişkin paydaş görüşlerinin değerlendirilmesi. Peyzaj Mimarlığı IV. Kongresi "Planlama-Tasarım-Onarım-Yönetim" Açılımlar Bildiriler Kitabı, İzmir. 560-570.

Anonymus, (2024). https://acikders.ankara.edu.tr/pluginfile.php/176493/mod_resource/content/0/Hafta%207_%C3%96rneklem%20T%C3%BCrleri%20ve%20Hesaplanmas%C4%B1.pdf [Access Date: 01.11.2024].

Anonymus, (2024a). https://peyzaj.kku.edu.tr/Idari/Sayfa/Index?Sayfa=BolumBolumTarihcesi [Access Date: 20.10.2024].

Anonymus, (2024b). https://mimarlik.sdu.edu.tr/peyzajmimarligi [Access Date: 20.10.2024].

Anonymus, (2024c). https://muh.nevsehir.edu.tr/tr/tarihce [Access Date: 20.10.2024].

Anonymus, 2024d. https://selcuk.edu.tr/Birim/Bolum/mimarlik_ve_tasarim_fakultesi-peyzaj_mimarligi/15470/hakkinda/47052 [Access Date: 20.10.2024].

Anonymus, (2024e). https://of.karatekin.edu.tr/tr/tanitim-29324-sayfasi.karatekin [Access Date: 20.10.2024].

Anonymus, (2024f). http://peyzaj.agri.ankara.edu.tr/tarihce/ [Access Date: 20.10.2024].

Anonymus, (2024g). Çevre ve Şehircilik Bakanlığı. Çevresel Etki Değerlendirme Yönetmeliği. Resmi Gazete, 26939, 17 Temmuz 2008, 25 s.

Anonymus, (2024h). PEMDER-Peyzaj Mimarları Eğitim ve Bilim Derneği. http://pemder.org.tr/hakkinda/ [Access Date: 20.10.2024].

Atanur, G., Türer Başkaya, F.A., Gültekin, P., Özdede, S., Artar, M., Bingül Bulut, M. (2020). Peyzaj mimarlığı eğitim politikası. PEYZAJ, Acreditation in Landscape Architecture-Special Issue. 58-66.

Baker R. The reliability and criterion validity of a measure of patients' satisfaction with their general practice. Fam Pract 1991;8:171–7).

Cronbach L. Coefficient alpha and the internal structure of tests. Psychomerika. 1951;16:297-334. 10.1007/BF02310555.

Çifci, S., Şakacı, B.K. (2015). Çevre bilinçli tüketicilerin firmaları ödüllendirme ve cezalandırma isteklilikleri: Kadın ve erkek tüketiciler arasındaki farklılıklar. Eskişehir Osmangazi Üniversitesi İİBF Dergisi, 10 (1): 287-296.

Çolakoğlu, E. (2010). Haklar söyleminde çevre eğitiminin yeri ve Türkiye'de çevre eğitiminin anayasal dayanakları. TBB Dergisi, 88: 151-171.

Erol, H.G. (2005). Sınıf öğretmenliği ikinci sınıf öğrencilerinin çevre ve çevre sorunlarına yönelik tutumları. Int. Journal of Evironmental & Science Education, 1. 65-77.

Ertan, B. (2004). 2000'li yıllarda çevre etiği yaklaşımları ve Türkiye. Yönetim Bilimleri Dergisi, 2 (1): 93-108.

Güngör, S. (2022). Evaluation of popular recreation places in Konya in terms of safety and maintenance criteria: In the case of Kalehan Ecdat and Japon parks. Selcuk Journal of Agriculture and Food Sciences, (2022) 36 (Special Issue), 23-26 e-ISSN: 2458-8377.

Güzel, Z.T., Erdem Kaya, M. (2020). Peyzaj mimarlığı eğitimindeki fakülte yaklaşımlarının ekolojik bilinç kazanımına etkisinin değerlendirilmesi. Peyzaj Araştırmaları ve Uygulamaları Dergisi, 2(2) 2020 61-72.

Kaplan, A. (2000). Eğitim-Öğretim-Araştırma-Uygulama etkileşimi bağlamında peyzaj mimarlığı meslek disiplininde ortak bir platform oluşturma gereği. TMMOB Peyzaj Mimarları Odası 2007 Yayını, 1-2; 62-67.

Keleş, R., Hamamcı, C., Çoban, A. (2015). Çevre Politikası. İmge Kitapevi, Ankara.

Kızılaslan, H., Kızılaslan, N. (2005). Çevre konularında kırsal halkın bilinç düzeyi ve davranışları (Tokat İli Artova İlçesi Örneği). Uluslararası Yönetim İktisat ve İşletme Dergisi, 1 (1): 67-88.

Nazlıoğlu, M.D. (1991). Sürdürülebilir kalkınma açısından kadın ve çevre. Sürdürülebilir Kalkınma El Kitabı, Türkiye Çevre Sorunları Vakfı Yayını, Ankara.

Ortaçeşme, V., Kınıklı, E., Yıldırım, E. (2014). Türkiye'deki peyzaj mimarlığı bölümleri ve eğitim-öğretime ilişkin mevcut durum. 1. Peyzaj Mimarlığı Eğitim-Öğretim Çalıştayı Bildiriler Kitabı, Antalya. s 31-45.

Şafak, G., Erkal, S. (1999). Çevre eğitimi ve aile. Eğitim ve Bilim, 23 (112): 63-66.

Tıraş, H.H. 2012. Sürdürülebilir kalkınma ve çevre: Teorik bir inceleme. Kahramanmaraş Sütçü İmam Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 2(2): 57-73.

Uzun, O., Kesim, G.A. (2008). 21. yüzyılda peyzaj mimarlığı eğitimi. Türkiye Ormancılar Derneği Yayını, 279-290.

Uzun, O., Karaçor, E.K., Şenik, B. (2019). Peyzaj mimarlığı bölümlerinin olumlu ve olumsuz yönleri. 50. yılında Peyzaj Mimarlığı Eğitim ve Öğretimi. Pelin Matbaacılık, Düzce, Bölüm 1: Peyzaj Mimarlığı Bölümlerine İlişkin Mevcut Durum. 18-23.

Zengin, E., Esedov, A. 2010. Çevre sorunlarının yerel özellikleri ve Üsküdar örneği. Sosyal Siyaset Konferansları Dergisi, 59:149-178.