Öğretmen Adaylarının Sürdürülebilir Çevre Eğitimine Yönelik Tutumlarının Değerlendirilmesi

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Öz

Bu çalışmanın amacı, sürdürülebilir çevre eğitiminin merkezinde ve geleceğin öğretmeni olan öğretmen adaylarının tutum düzeylerini ortaya çıkarmaktır. Bu çalışma, nicel bir araştırma olup tarama desenini temel almaktadır. Araştırmaya Karadeniz Bölgesi'nde bir üniversitenin eğitim fakültesinin farklı bölümlerinde öğrenim gören 471 öğretmen adayı katılmıştır. Çalışmanın verileri Fen Bilgisi Öğretmenliği, Matematik Öğretmenliği, Okul Öncesi Öğretmenliği, Sınıf Öğretmenliği ve Sosyal Bilgiler Öğretmenliği anabilim dallarında öğrenim görmekte olan öğretmen adaylarından toplanmıştır. Online olarak hazırlanan form aracılığıyla öğretmen adaylarının tamamına ulaşılmış ve gönüllü olan öğrencilerin katkıları sonucunda 471 veriye ulaşılmıştır. Araştırmada "Sürdürülebilir Çevre Eğitimi Tutum Ölçeği" kullanılmıştır. Araştırmada elde edilen verilerin analizinde SPSS 22.0 paket program kullanılmıştır. Verilerin analizi sonucunda Fen Bilgisi anabilim dalında öğrenim gören, çevre ile ilgili sivil toplum kuruluşuna üye olan, basılı veya online yayın takip eden öğretmen adaylarının ve kadın öğretmen adaylarının sürdürülebilir çevre eğitimine yönelik tutumlarının daha yüksek olduğu bulgusuna ulaşılmıştır. Elde edilen sonuçlara göre öğretmen adaylarına sürdürülebilir çevre konusunda eğitim vermek ve müfredata bu konularla ilgili daha fazla ders eklemek etkili bir çözüm olabilir.

Anahtar Kelimeler: sürdürülebilir, çevre, öğretmen adayları, tutum, sürdürülebilir çevre eğitimi, sürdürülebilirlik

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Giriş

Çevre eğitimi söz konusu olduğunda, sürdürülebilirlik veya sürdürülebilir kalkınma kavramlarına dikkat çekildiği görülmekle birlikte çevre eğitimi adı altında yapılan yeniliklerin sürdürülebilirliği de tartışılır düzeydedir (Benedict, 1999). Ancak, McFarlane ve Ogazon'a (2011) göre, sürdürülebilirlik veya sürdürülebilir çevre eğitimi denildiğinde sadece çevreye özen gösterilmesi veya doğal kaynakların korunması anlaşılmamalıdır. Zaman içinde sürdürülebilirlik veya sürdürülebilir çevre, temelde sosyal yaşamı, kültürü, eğitimi, ekonomiyi ve politikaları kapsayan ve sürdürülebilir değişimin planlandığı geniş bir felsefe haline gelmiş olmakla birlikte (McFarlane ve Ogazon, 2011) çevre eğitimi sadece örgün eğitim kurumlarında planlı bir şekilde verilebilecek bir eğitim olarak da algılanmamalıdır. Çevre eğitimi, bireylerin içine doğdukları ailelerinin davranışlarını ve tutumlarını gözlemleyerek başlayan ve yıllar içinde alınan formal ya da informal eğitimlerle desteklenen bir süreçtir. Matsekoleng'in (2021) yaptığı bir çalışmasında da belirttiği gibi, ebeveynlerin gün içinde yaptıkları ve çocukları tarafından gözlemlenen her türlü faaliyet (temizlik yapma, bulaşık yıkama vb.) çocuklarının çevreye yönelik bilinçlerini şekillendirmektedir. Aynı şekilde ebeveynlerin sahip olduğu çevre bilgisi ve bu konuda çocuklarına olan yaklaşımları da çocuklarının çevre bilgilerine/okuryazarlıklarına etki etmektedir (Matsekoleng, 2021).

Geleceğin yetişkinlerini yetiştiren bugünün ebeveynlerinin veya eğitimcilerinin sahip olduğu çevre bilgisi, verilecek çevre eğitiminin niteliği ve sürdürülebilirliği konusunda oldukça önemli bir yere sahiptir. Eğitimcilerin çevre eğitimi konusunda sahip oldukları bilgiler de hem aldıkları formal ve informal eğitimler ile hem yazılı ya da basılı kaynaklardan edindikleri bilgiler ile hem de bulundukları ortamlarda yaptıkları gözlemler sonucunda şekillenmektedir. Dolayısıyla öğretmen yetiştiren kurumlar da tüm öğrencilerine çevre etiğini aşılamalı ve öğrencilerinde doğal çevreye karşı sorumluluk alma kültürünü oluşturmayı hedeflemelidirler (Thomas ve Nicita, 2002). Ancak Türkiye'deki öğretmen yetiştiren kurumlara bakıldığında ise eğitim fakültelerindeki bölümlerin veya anabilim dallarının çoğunda sürdürülebilir çevre eğitimine yönelik herhangi bir dersin verilmediği görülmektedir. Çevresel sürdürülebilirlik ile ilgili bir dersin eğitim kurumlarında herhangi bir akademik disipline dahil edilmemiş olması da eğitimcilerin çevre ile ilgili bilgilerinde var olan eksikliğin sebeplerinden biri olarak gösterilebilir (Waswala, Otieno ve Buoga, 2019). Oysaki eğitim kurumlarında sürdürülebilirlik ile ilgili eğitimler verilmesi, bu eğitimin amaçlarına ulaşılmasında etkili bir yol olarak görülmektedir (Higgs ve McMillan, 2006). Bu çalışmada da, eğitim-öğretim sürecinin merkezinde bulunan geleceğin öğretmenleri konumundaki öğretmen adaylarının sürdürülebilir çevre eğitimine yönelik tutumlarının ne düzeyde olduğunun belirlenmesi amaçlanmaktadır.

Yöntem

Bu çalışma, öğretmen adaylarının sürdürülebilir çevre eğitimine yönelik tutumlarını belirlemek amacıyla yapılan nicel bir araştırmadır. Araştırmada nicel araştırma desenlerinden biri olan ve bir durumu tasvir etmeyi amaçlayan tarama yöntemi kullanılmıştır. Çalışmaya Karadeniz Bölgesinde bulunan üniversitelerden birinin eğitim fakültesinde farklı anabilim dallarında öğrenim görmekte olan 471 öğretmen adayı katılmıştır. Çalışmanın verileri Fen Bilgisi Öğretmenliği, Matematik Öğretmenliği, Okul Öncesi Öğretmenliği, Sınıf Öğretmenliği ve Sosyal Bilgiler Öğretmenliği anabilim dallarında öğrenim görmekte olan öğretmen adaylarından toplanmıştır. Online ortamda hazırlanan bir form aracılığıyla öğretmen adaylarının tamamına

ulaşılmış ve gönüllü olanların çalışmaya verdiği katkı sonucunda 471 veriye ulaşılmıştır. Çalışmada, Afacan ve Demirci-Güler (2011) tarafından geliştirilen "*Sürdürülebilir Çevre Eğitimi Tutum Ölçeği*" kullanılmıştır. Ölçek 30 maddeden oluşan 5'li likert tipi bir ölçektir. Çalışmada elde edilen verileri analiz etmek için SPSS 22.0 paket programı kullanılmıştır. Analize başlamadan önce verilerin hangi testle analiz edileceğini belirlemek için Kolmogorov-Smirnov ve Shapiro-Wilk normallik testleri yapılmıştır. Verilerin normal dağılıma uygun olmadığı belirlendikten sonra ($p=.000$; $p<.01$), ikili grupların karşılaştırılmasında Mann-Whitney U testi, üç ve üzeri grubun karşılaştırılmasında ise Kruskal Wallis testi kullanılarak analizler yapılmıştır. Yapılan Kruskal Wallis testi sonucunda gruplar arasında fark oluşmasından dolayı bütün grupları ikişerli şekilde karşılaştırmak amacıyla Dunn İkili Gruplar testleri uygulanmıştır. Bu test sonucunca da hangi gruplar arasında fark olduğu ortaya çıkartılmıştır.

Bulgular

Çalışmanın bu kısmında, elde edilen veriler öğretmen adaylarının cinsiyetleri, öğrenim gördükleri anabilim dalları, ailelerinin sosyoekonomik düzeylerine ilişkin veriler; sürdürülebilir çevreyle ilgili herhangi bir sivil toplum kuruluşuna üye olma, basılı veya online herhangi bir yayın takip etme ve herhangi bir eğitime ihtiyaç duyma durumlarına göre analiz edilmiş ve ayrı ayrı sunulmuştur.

Öğretmen Adaylarının Cinsiyetleri ve Sürdürülebilir Çevre Eğitimine Yönelik Tutumlarına İlişkin Bulgular

Tablo 5'te verilen sonuçlara göre, öğretmen adaylarının sürdürülebilir çevreye yönelik bilinçliliklerinin, düşüncelerinin, gönüllülüklerinin, tutumluluklarının, duyarlılıklarının ve tasarruflu tüketimlerinin cinsiyetlerine göre farklılık gösterdiği belirlenmiştir. Faktör bazında yapılan analizler sonucunda kadın öğretmen adaylarının sürdürülebilir çevreye yönelik bilinçliliklerinin, düşüncelerinin, gönüllülüklerinin, tutumluluklarının, duyarlılıklarının ve tasarruflu tüketimlerinin erkek öğretmen adaylarına göre daha yüksek olduğu tespit edilmiştir.

Öğretmen Adaylarının Öğrenim Gördükleri Anabilim Dalları ile Sürdürülebilir Çevre Eğitimine Yönelik Tutumlarına İlişkin Bulgular

Tablo 7'deki verilere göre, karşılaştırılan gruplar içerisinde Fen Bilgisi Öğretmenliği anabilim dalında öğrenim gören öğretmen adaylarının tutumları ile Sosyal Bilgiler Öğretmenliği anabilim dalında öğrenim gören öğretmen adaylarının tutumları arasındaki farkın anlamlı olduğu bulunmuştur ($p<0.01$). Fen Bilgisi Öğretmenliği anabilim dalında öğrenim gören öğretmen adaylarının sürdürülebilir çevre eğitimine yönelik tutumlarının Sosyal Bilgiler Öğretmenliği anabilim dalında öğrenim gören öğretmen adaylarına göre daha yüksek olduğu tespit edilmiştir.

Öğretmen Adaylarının Ailelerinin Sosyo-Ekonomik Düzeyleri ile Sürdürülebilir Çevre Eğitimine Yönelik Tutumlarına İlişkin Bulgular

Tablo 8'e göre öğretmen adaylarının sürdürülebilir çevreye yönelik bilinçlilikleri, düşünceleri, gönüllülükleri, tutumlulukları, duyarlılıkları ve tasarruflu tüketimleri ailelerinin sosyo-ekonomik düzeylerine göre farklılık göstermemektedir.

Öğretmen Adaylarının Herhangi Bir Sivil Toplum Kuruluşuna Üye Olma Durumları ile Sürdürülebilir Çevre Eğitimine Yönelik Tutumlarına İlişkin Bulgular

Tablo 9'a göre, öğretmen adaylarının sürdürülebilir çevreye yönelik bilinçliliklerinin, gönüllülüklerinin, tutumluluklarının ve duyarlılıklarının herhangi bir sivil toplum kuruluşuna üye olma durumlarına göre farklılık gösterdiği belirlenmiştir. Herhangi bir sivil toplum kuruluşuna üye olan öğretmen adaylarının sürdürülebilir çevreye yönelik bilinçliliklerinin, gönüllülüklerinin, tutumluluklarının ve duyarlılıklarının herhangi bir sivil toplum kuruluşuna üye olmayanlara göre daha yüksek olduğu bulgusuna ulaşılmıştır.

Öğretmen Adaylarının Basılı veya Online Herhangi Bir Yayın Takip Etme Durumları ile Sürdürülebilir Çevre Eğitimine Yönelik Tutumlarına İlişkin Bulgular

Tablo 10'daki verilere göre, öğretmen adaylarının sürdürülebilir çevreye yönelik bilinçliliklerinin, düşüncelerinin, gönüllülüklerinin, tutumluluklarının, duyarlılıklarının ve tasarruflu tüketimlerinin basılı veya online herhangi bir yayını takip etme durumlarına göre farklılık gösterdiği tespit edilmiştir. Herhangi bir basılı veya online yayını takip eden öğretmen adaylarının sürdürülebilir çevreye yönelik bilinçliliklerinin, düşüncelerinin, gönüllülüklerinin, tutumluluklarının, duyarlılıklarının ve tasarruflu tüketimlerinin basılı veya online herhangi bir yayını takip etmeyenlere göre daha yüksek olduğu görülmektedir.

Öğretmen Adaylarının Sürdürülebilir Çevre İle İlgili Herhangi Bir Eğitime İhtiyaç Duyma Durumları ile Sürdürülebilir Çevre Eğitimine Yönelik Tutumlarına İlişkin Bulgular

Tablo 11'de verilen sonuçlara göre öğretmen adaylarının sürdürülebilir çevreye yönelik bilinçliliklerinin, düşüncelerinin, gönüllülüklerinin, tutumluluklarının, duyarlılıklarının ve tasarruflu tüketimlerinin sürdürülebilir çevre ile ilgili herhangi bir eğitime ihtiyaç duyma durumlarına göre farklılık gösterdiği bulgusuna ulaşılmıştır. Sürdürülebilir çevre ile ilgili herhangi bir eğitime ihtiyaç duyan öğretmen adaylarının sürdürülebilir çevreye yönelik bilinçlilikleri, düşünceleri, gönüllülükleri, tutumlulukları, duyarlılıkları ve tasarruflu tüketimleri herhangi bir eğitime ihtiyaç duymayanlara göre daha yüksektir.

Tartışma, Sonuç ve Öneriler

Çalışmamızdan elde edilen sonuçlara dayanarak genel olarak belli başlı ifadelerde bulunulabilir. İlk olarak, bölüm bazında bakıldığında Fen Bilgisi öğretmeni adaylarının tutumları Sosyal Bilgiler Öğretmenliği anabilim dalındaki öğretmen adaylarının tutumlarından yüksek çıkmıştır. Bu durumu etkileyen neden olarak Fen Bilgisi öğretmenliğinin programında çevre, sürdürülebilirlik ve doğaya ilişkin derslerin daha çok yer alması düşünülmektedir. Bu nedenle Sosyal Bilgiler Öğretmenliği bölümünün programında da bu gibi konuların daha yoğun ele alınabileceği derslere yer verilebilir. Kadın öğretmen adaylarının sürdürülebilir çevre eğitimine yönelik gönüllülük, duyarlılık, bilinçlilik, tutumluluk ve tasarruflu tüketim düzeylerinin erkek öğretmen adaylarından daha yüksek bulunduğundan hareketle erkek öğretmen adaylarının bu gibi başlıkları kapsayan bir çevre eğitimi programı kapsamında eğitim görmeleri sağlanabilir. Çalışmamızda sivil toplum kuruluşuna üye olan öğretmen adaylarının sürdürülebilir çevre eğitimine yönelik gönüllülükleri, duyarlılıkları, bilinçlilikleri ve tutumlulukları sivil toplum kuruluşlarına üye olmayan öğretmen adaylarından yüksek çıktığı için öğretmen adaylarının çevre ile ilgili sivil toplum kuruluşlarına üye olmak konusunda teşvik edilmeleri önerilebilir. Basılı veya online herhangi bir yayını takip eden öğretmen adaylarının sürdürülebilir çevre

eğitimine yönelik düşünceleri, bilinçlilikleri, tutumlulukları, gönüllülükleri, tasarruflu tüketimleri ve duyarlılıkları basılı veya online herhangi bir yayını takip etmeyen öğretmen adaylarından daha yüksek çıkmıştır. Bu nedenle öğretmen adaylarının sürdürülebilir çevre konusunu ele alan basılı veya online yayınları takip etmek konusunda bilinçlendirilmeleri veya bu gibi kaynaklara abone olmak konusunda yönlendirilmeleri etkili olabilir. Sürdürülebilir çevre konusunda eğitime ihtiyaç duyduğunu belirten öğretmen adaylarının sürdürülebilir çevre eğitimine yönelik düşünceleri, bilinçlilikleri, tasarruflu tüketimleri, gönüllülükleri, duyarlılıkları ve tutumlulukları herhangi bir eğitime ihtiyaç duymayan öğretmen adaylarından daha yüksek çıkmıştır. Bu nedenle öğretmen adaylarının sürdürülebilir çevre konusunda eğitimler almaları, öğretim programlarında bu konuların işleneceği derslere daha fazla yer verilmesi etkili bir çözüm oluşturabilir.

Evaluation of Prospective Teachers' Attitudes Towards Sustainable Environmental Education

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Abstract

The aim of this study is to reveal the attitude levels of prospective teachers, who are the teachers of the future, about sustainable environmental education. This study is a quantitative research based on survey design. 471 prospective teachers studying in different departments of the Education Faculty of a university in Black Sea region participated in the study. The data were collected from prospective teachers studying at the departments of Science Teaching, Mathematics Teaching, Preschool Teaching, Primary School Teaching and Social Sciences Teaching. All of the prospective teachers were reached through an online form and 471 participants were reached as a result of the participation of volunteering students. "Sustainable Environmental Education Attitude Scale" was used in the study. SPSS 22.0 package program was used in the analysis of data. As a result of data analysis, it was found that prospective teachers who were studying at the department of Science Teaching, those who were members of non-governmental organizations related with the environment, and those who followed printed or online publications and female prospective teachers had higher attitudes towards environmental education. According to the results obtained, it may be an effective solution to provide education to prospective teachers about sustainable environment and to add more courses in the curriculum on these topics.

Keywords: sustainable, environment, prospective teachers, attitude, sustainable environmental education, sustainability.

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Evaluation of Prospective Teachers' Attitudes Towards Sustainable Environmental Education

Today, although the interaction between people and the environment is aimed at meeting individuals' needs and ensuring the continuity of their lives (Tekiroğlu & Hayır-Kanat, 2021), the reality of this situation is discussed. This is because every activity in which humans interact with the environment and the excessive use of environmental resources during these interactions causes environmental degradation (Eba, 2020). The fact that the young generation will inherit the harsh consequences of environmental degradation caused by economic development is inevitable unless no measures are taken for a solution (Darmawan & Dagamac, 2021). Therefore, all kinds of activities done by people without thinking cause a negative effect on the environment and these negative effects on the environment increase incrementally every day (García-González, García-Palencia & Sánchez-Ondoño, 2021). It is very important to carry out some awareness raising and informing studies in reducing or eliminating these negative effects and in eliminating many problems that we encounter as environmental problems. Formal education services can be provided in all educational levels from preschool to undergraduate education on the environment, environmental problems and environmental education and non-formal education can be provided to adults who have completed or dropped outdoor education so that they can gain knowledge and awareness about environmental education. Alternative solutions can be presented to overcome the existing environmental problems with the aforementioned knowledge and awareness (Ongon, Wongchantra & Bunnaen, 2021).

Environmental education plays an important role in protecting and improving natural education and maintaining the continuity of sustainable life (Suarlin & Ali, 2020). Environmental education is an important tool in which environmental problems that started to occur after industrial revolution have been discussed and solutions have been sought to protect the environment since the 1970s (Özdemir, 2007). However, what is emphasized by environmental education is not the protection of the natural environment without taking into consideration the needs and rights of humanity, but it is producing solutions to protect the natural environment by accepting humanity as an indispensable part of ecosystem (Sauvé, 1996). In this context, it is very important to carry out all studies to protect or improve the environment in a way that will both protect the environment and meet the needs of humanity; that is, to ensure sustainability. Based on the fact that natural environment has a very important place in ensuring the continuity of human generations and meeting the needs of people, it can be said that ensuring the continuity of natural environment with all its existence despite humans and all the destructive effects caused by humans is very important in terms of meeting the needs of both today's and future generations' needs. In this context, it can be seen how necessary all kinds of studies conducted on the environment and environmental education are.

In the Tbilisi Declaration issued in 1977 at the Tbilisi Conference, which is the world's first intergovernmental environmental education conference, organized in Tbilisi Georgia by UNESCO in cooperation with the United Nations Environmental Program, attention was drawn to the role of environmental education in protecting and improving the environment and the characteristics, goals and objectives of environmental education were determined with an international agreement (URL 1). In this context, although its general framework was determined by the Tbilisi Declaration and some initiatives have been taken at national or

international level in time, it can be said that sustainable environmental education is a requirement for the protection and improvement of the environment. In other words, it is very important for studies conducted in different fields about environmental education to have continuity so that all these efforts shown can find a return. The fact that all the resources in the past can still be used today shows that the sustainability of these resources has been ensured. Therefore, it is important to ensure continuity for the protection and improvement of the environment in all studies conducted on environmental education, to ensure that the resources that exist today can be used by the future generations just as the resources of the past can still be used today in terms of sustainability (Tamkan, 2008). The purpose of environmental education is to enable individuals and societies to understand the nature of the natural environment and to teach them knowledge, values, attitudes, and practical skills about the environment (Suarlin & Ali, 2020). It is also a fact that especially in developing countries, it is necessary for education on sustainable development to be provided in all educational levels and it is very important for teachers to have correct knowledge, skills and attitudes about sustainability (Debrah, Vidal & Dinis, 2021).

In terms of environmental education, although it is seen that the concepts of sustainability and sustainable development have been emphasized, the sustainability of innovations made for environmental education are at a debatable level (Benedict, 1999). However, according to McFarlane and Ogazon (2011), sustainability or sustainable education should not be understood only as paying attention to the environment or protecting the natural resources. While sustainability or sustainable education have become a broad philosophy which covers basically social life, culture, education, economy and policies and in which sustainable change is planned (McFarlane & Ogazon, 2011), environmental education should not be considered as an education that can be given only in formal educational institutions in a planned way. Environmental education is a process that starts by the individuals' observing the behaviors and attitudes of the family they are born in, and it is supported with the formal and informal education received within years (Karademir, Uludağ & Cingi, 2017). As stated by Matsekoleng (2021), all kinds of activities performed by parents and observed by children during the day (cleaning, washing dishes, etc.) shape children's awareness about the environment. Similarly, environmental knowledge of parents and their attitudes towards their children on this issue affect children's environmental knowledge/literacy (Matsekoleng, 2021).

Environmental knowledge of today's parents or educators who raise the adults of the future has a very important place in terms of the quality and sustainability of the environmental education to be given (Tamkan, 2008). The knowledge educators have about environmental education is shaped by both the formal and informal education they receive and the knowledge they acquire from written and published sources and the observations they make as a result of the environments they are in. Therefore, institutions educating teachers should instil environmental ethics in all their students and aim to create a culture of taking responsibility in their students (Thomas & Nicita, 2002). However, when the institutions educating teachers are considered in Turkey, it can be seen that there are no courses in most of the departments of education faculties on sustainable environmental education (Yılmaz & Sayhan, 2018). The fact that a course on environmental sustainability is not included in any academic discipline in educational institutions can be shown as one of the reasons for

educators' lack of knowledge about the environment (Waswala, Otieno & Buoga, 2019). However, providing trainings on sustainability in educational institutions is considered as an effective way to achieve the objectives of this education (Higgs & McMillan, 2006). The aim of the present study is to find out the attitude levels of prospective teachers who are the teachers of the future in the center of education on sustainable environmental education. In this direction, answers were sought to the following sub-problems with the present study:

1. Are there significant differences between prospective teachers' genders and their attitudes on sustainable environmental education?
2. Are there significant differences between prospective teachers' departments and their attitudes on sustainable environmental education?
3. Are there significant differences between the familysocio-economic levels of prospective teachers and their attitudes on sustainable environmental education?
4. Are there significant differences between prospective teachers' states of being a member of non-governmental organizations and their attitudes on sustainable environmental education?
5. Are there significant differences between prospective teachers' states of following a print or online publication and their attitudes on sustainable environmental education?
6. Are there significant differences between prospective teachers' states of needing education on sustainable environment and their attitudes on sustainable environmental education?

Method

This study is a quantitative study conducted to find out the attitudes of prospective teachers on sustainable environmental education.

Research Model

Survey method, which is one of the quantitative study designs aiming to describe a situation, was used in the study. Survey design, which is frequently used in non-experimental studies, is used in determining characteristics, such as interest, attitude and awareness (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz & Demirel, 2014; Christensen, Johnson & Turner, 2015).

Study Group

471 prospective teachers studying in different departments of the Education Faculty of a university in Black Sea Region participated in the study. All the prospective teachers were reached through a form prepared online and 471 data were reached as a result of the contribution of the students who volunteered.

Results regarding the demographic information of prospective teachers in the study

In this section, the data regarding the demographic information of prospective teachers are presented in table 1 with frequency and percentages:

Table 1.

Data regarding the demographic information of prospective teachers

		Frequency (f)	Percentage (%)
Gender	Female	380	80.67
	Male	91	19.33
Department	Primary Education	121	25.69
	Science Education	105	22.29
	Social Science Education	102	21.66
	Pre-school Education	87	18.47
	Mathematics Education	56	11.89
Socio-Economic Levels	0-2324 TRY	147	31.21
	2325-4648 TRY	211	44.80
	4649 TRY and higher	113	23.99

When table 1 is examined, it can be seen that of the 471 prospective teachers in the study, 380 (80.67%) were female, while 91 (19.33%) were male; 121 (25.69%) students were studying in primary education teaching department, while 105 (22.29%) were studying in science teaching department, 102 (21.66%) were studying in social studies teaching department, 87 (18.47%) were studying in pre-school teaching department and 56 (11.89%) were studying in mathematics teaching department; incomes of 147 (31.21%) were between 0 and 2324 TRY, incomes of 211 (44.80%) were between 2325 and 4648 TRY, and incomes of 113 (23.99%) were 4649 TRY and higher.

Data Collection Tool

In this study, "*Sustainable Environmental Education Attitude Scale*" which is developed by Afacan and Demirci-Güler (2011) was used. The scale is a 5-likert type scale consisting of 30 items. The items in the scale are answered as (1) Totally disagree, (2) Disagree, (3) Neutral, (4) Agree and (5) Totally agree. The Cronbach's alpha value of the developed scale was .904, and the KMO value was .893. There are six factors in the scale. First factor is "Awareness towards sustainable environment"; second factor is "Thoughts about sustainable environmental education"; third factor is "Volunteering towards sustainable environmental education"; fourth factor is "Thrift towards sustainable environmental education"; fifth factor is "Sensitivity towards sustainable environmental education" and sixth factor is "Saving consumption towards sustainable environmental education".

Analysis of Data

The data relating the second factor of the scale called "thoughts about sustainable environmental education" are analyzed by reverse coding. After the permissions required for the study were taken, data collection process was started. SPSS 22.0 package program was used to analyze the data obtained in the study. Before starting the analysis, Kolmogorov-Smirnov and Shapiro-Wilk normality tests were conducted to determine the test to analyze the data with. After it was found that the data were not normally distributed ($p=.000$; $p<.01$), the analyses were performed by using Mann-Whitney U test for the comparison of paired groups and Kruskal Wallis test was used to compare three or more groups. Since differences were found between the groups as a result of the Kruskal Wallis test, Dunn pairwise test was used to compare all groups in pairs. As a result of this test, it was found between which groups differences existed. Permission was obtained for this study with the decision of the Social and

Human Sciences Ethics Committee of Ondokuz Mayıs University, dated 26.08.2020 and numbered 2020/512.

Results regarding the normality distribution of the data obtained in the study

In this section, the data regarding Kolmogorov-Smirnov and Shapiro-Wilk normality tests conducted to determine which analysis techniques to use to analyze the data obtained regarding the factors in the scale are presented in table 2:

Table 2.

Data regarding Kolmogorov-Smirnov and Shapiro-Wilk Normality Tests

Factor	Kolmogorov-Smirnov			Shapiro-Wilk		
	statistic	Sd	p	statistic	sd	p
Awareness towards sustainable environment	.145	470	.000	.894	470	.000
Thoughts about sustainable environmental education	.132	470	.000	.873	470	.000
Volunteering towards sustainable environmental education	.200	470	.000	.800	470	.000
Thrift towards sustainable environmental education	.177	470	.000	.831	470	.000
Sensitivity towards sustainable environmental education	.210	470	.000	.806	470	.000
Saving consumption towards sustainable environmental education	.216	470	.000	.798	470	.000

According to the data obtained from the normality tests conducted to determine the analysis techniques to be used in the analysis of the data obtained from the study, since the results of both Kolmogorov-Smirnov and Shapiro-Wilk tests were $p<0.01$ for all tests, it was found that the data were not normally distributed (table 2). According to this result, it was deemed as appropriate to use nonparametric tests in this study.

Results

In this part of the study, data regarding prospective teachers' gender, department, familial socio-economic level, state of being a member of a non-governmental organization, following a print or online publication, and needing education were analyzed in terms of the answers they gave to the scale items and the data obtained were presented in tables.

Results regarding the gender of prospective teachers and their attitudes towards sustainable environmental education

The data obtained from the Mann-Whitney U test conducted for six factors in the study in order to find out whether there are differences between prospective teachers' attitudes towards sustainable environmental education in terms of their gender are presented in Table 3:

Table 3.

The data regarding Mann-Whitney U Test showing whether there are differences between the attitudes of prospective teachers towards sustainable environmental education in terms of their gender

Factor	Gender	N	S.T.	S.O.	U	Z	p
Awareness towards sustainable environment	Male	91	18606.00	204.46	14420.00	2.432	0.015
	Female	379	92079.00	242.95			
Thoughts about sustainable environmental education	Male	91	17533.50	192.68	13347.50	3.355	0.001
	Female	379	93151.50	245.78			
Volunteering towards sustainable environmental education	Male	91	18523.50	203.55	14337.50	2.505	0.012
	Female	379	92161.50	243.17			
Thrift towards sustainable environmental education	Male	91	17615.00	193.57	13429.00	3.293	0.001
	Female	379	93070.00	245.57			
Sensitivity towards sustainable environmental education	Male	91	16809.00	184.71	12623.00	3.996	0.000
	Female	379	93876.00	247.69			
saving consumption towards sustainable environmental education	Male	91	15962.00	175.41	11776.00	4.745	0.000
	Female	379	94723.00	249.93			

According to the results in table 3, it was found that prospective teachers' awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering towards sustainable environmental education, thrift towards sustainable environmental education, sensitivity towards sustainable environmental education and saving consumption towards sustainable environmental education differed in terms of their gender [(U(N=470))=14420, z=-2.432, p<.05; U(N=470)=13347.50, z=-3.355, p<.01; U(N=470)=14337.50, z=-2.505, p<.01; U(N=470)=13429, z=-3.293, p<.01; U(N=470)=12623, z=-3.996, p<.01; U(N=470)=11776, z=-4.745, p<.01]. According to the results of the analyses made on the basis of factors, female prospective teachers were found to have higher levels of awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering towards sustainable environmental education, thrift towards sustainable environmental education, sensitivity towards sustainable environmental education and saving consumption towards sustainable environmental education than male prospective teachers.

It was found that in terms of awareness towards sustainable environment, female prospective teachers had a median of 3.70, while male prospective teachers had a median of 3.60; in terms of thoughts about sustainable environmental education, female prospective teachers had a median of 4.36, while male prospective teachers had a median of 4.09; in terms of volunteering towards sustainable environmental education, female prospective teachers had a median of 4.25, while male prospective teachers had a median of 4.00; in terms of thrift towards sustainable environmental education, female prospective teachers had a median of 4.17, while male prospective teachers had a median of 4.00; in terms of sensitivity towards

sustainable environmental education, female prospective teachers had a median of 4.20, while male prospective teachers had a median of 4.00 and in terms of saving consumption towards sustainable environmental education, female prospective teachers had a median of 4.50, while male prospective teachers had a median of 4.00.

Results regarding the department of prospective teachers and their attitudes towards sustainable environmental education

The data obtained from the Kruskal-Wallis test conducted to find out whether there are differences between prospective teachers' attitudes towards sustainable environmental education in terms of their department are presented in table 4:

Table 4.

The data regarding the Kruskal Wallis Test showing whether there are differences between the attitudes of prospective teachers towards sustainable environmental education in terms of their department

Factor	Department	N	S. O.	s.d.	χ^2	P
Awareness towards sustainable environment	Science Edu.	105	254.49	4	2.784	.595
	Primary Edu.	121	230.34			
	Social Sci. Edu.	101	226.17			
	Pre-School	87	232.97			
	Mathematic	56	231.82			
Thoughts about sustainable environmental education	Science Edu.	105	241.63	4	2.894	.576
	Primary Edu.	121	239.02			
	Social Sci. Edu.	101	235.27			
	Pre-School	87	241.62			
	Mathematic	56	207.31			
Volunteering towards sustainable environmental education	Science Edu.	105	263.56	4	6.558	.161
	Primary Edu.	121	232.48			
	Social Sci. Edu.	101	224.08			
	Pre-School	87	219.10			
	Mathematic	56	235.50			
Thrift towards sustainable environmental education	Science Edu.	105	278.46	4	14.623	.006
	Primary Edu.	121	227.91			
	Social Sci. Edu.	101	212.54			
	Pre-School	87	223.45			
	Mathematic	56	231.47			
Sensitivity towards sustainable environmental education	Science Edu.	105	258.84	4	7.139	.129
	Primary Edu.	121	216.88			
	Social Sci. Edu.	101	222.14			
	Pre-School	87	247.63			
	Mathematic	56	237.22			
Saving consumption towards sustainable environmental education	Science Edu.	105	254.20	4	6.644	.156
	Primary Edu.	121	239.71			
	Social Sci. Edu.	101	219.28			
	Pre-School	87	214.66			
	Mathematic	56	252.96			

According to table 4, it can be seen that difference was found between prospective teachers' departments and only thrift towards sustainable environmental education

[$\chi^2(4,N=470)=14.623$, p=.006]. In order to find out between which groups the differences existed, departments were compared pairwise. The data obtained from the Dunn pairwise groups test conducted to compare 10 pairs of groups are shown in table 5:

Table 5.

The data regarding Dunn Pairwise Groups Test showing whether there are differences between the attitudes of prospective teachers'thrift towards sustainable environmental education in terms of their department

Comparison	Test Statistic	Standard Deviation	p	Corrected p
Social Sciences – Pre-school	-10.904	19.783	.582	1.000
Social Sciences – Primary	15.369	18.229	.399	1.000
Social Sciences – Mathematic	-18.929	22.533	.401	1.000
Social Sciences – Science	65.913	18.850	.000	.005
Pre-school – Primary	4.465	19.011	.814	1.000
Pre-school – Mathematic	-8.025	23.171	.729	1.000
Pre-school – Science	55.009	19.608	.005	.050
Primary – Mathematic	-3.560	21.859	.871	1.000
Primary – Science	50.544	18.038	.005	.051
Mathematic – Science	46.984	22.380	.036	.358

According to the data in table 5, among the groups compared, the difference between the attitudes of prospective teachers studying in Science Teaching department and those studying in Social Studies Teaching department was found to be significant (p<0.01). The attitudes of prospective teachers studying in Science Teaching department towards sustainable environmental education (Median=4.33) were found to be higher than the attitudes of those studying in Social Studies Teaching department (Median=4.00).

Results regarding the family socioeconomic level of prospective teachers and their attitudes towards sustainable environmental education

The data obtained from the Kruskal-Wallis test conducted to find out whether there are differences between prospective teachers' attitudes towards sustainable environmental education in terms of socioeconomic level of their families are presented in table 6:

Table 6.

The data regarding Kruskal Wallis Test showing whether there are differences between the attitudes of prospective teachers towards sustainable environmental education in terms of socioeconomic level of their families

Factor	Income	N	S. O.	s.d.	χ^2	P
Awareness towards sustainable environment	0-2324	146	244,89	2	1.746	.418
	2325-4648	211	226,56			
	4649 and üstü	113	240,06			
Thoughts about sustainable	0-2324	146	222,49	2	2.482	.289
	2325-4648	211	237,34			

environmental education	4649 and üstü	113	248,87			
Volunteering towards sustainable environmental education	0-2324	146	242,51	2	3.156	.206
	2325-4648	211	223,48			
	4649 and üstü	113	248,88			
Thrift towards sustainable environmental education	0-2324	146	217,99	2	3.924	.141
	2325-4648	211	240,02			
	4649 and üstü	113	249,68			
Sensitivity towards sustainable environmental education	0-2324	146	235,73	2	2.503	.286
	2325-4648	211	226,71			
	4649 and üstü	113	251,61			
Saving consumption towards sustainable environmental education	0-2324	146	228,67	2	4.687	.096
	2325-4648	211	227,45			
	4649 and üstü	113	259,36			

According to table 6, it was found that prospective teachers' awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering towards sustainable environmental education, thrift towards sustainable environmental education, sensitivity towards sustainable environmental education and saving consumption towards sustainable environmental education did not differ in terms of socioeconomic level of their families [(χ^2(4, *N*=470)=1.746, *p*>.05; χ^2(4, *N*=470)=2.482, *p*>.05; χ^2(4, *N*=470)=3.156, *p*>.05; χ^2(4, *N*=470)=3.924, *p*>.05; χ^2(4,*N*=470)=2.503, *p*>.05; χ^2(4, *N*=470)=4.687, *p*>.05].

Results regarding prospective teachers' states of being a member of a non-governmental organization and their attitudes towards sustainable environmental education

The data obtained from the Mann-Whitney U test conducted to find out whether there are differences between prospective teachers' attitudes towards sustainable environmental education in terms of their states of being a member of a non-governmental organization are presented in Table 7:

Table 7.

The data regarding the Mann-Whitney U Test showing whether there are differences between the attitudes of prospective teachers towards sustainable environmental education in terms of their states of being a member of a non-governmental organization

Factor	Member	N	S.T.	S.O.	U	Z	p
Awareness towards sustainable environment	Yes	31	8807,00	284,10	5298.00	-2.065	.039
	No	439	101878,00	232,07			
Thoughts about sustainable environmental education	Yes	31	8524,50	274,98	5580.50	-1.678	.093
	No	439	102160,50	232,71			
Volunteering towards sustainable environmental education	Yes	31	8805,00	284,03	5300.00	-2.064	.039
	No	439	101880,00	232,07			
Thrift towards sustainable environmental education	Yes	31	8938,50	288,34	5166.50	-2.251	.024
	No	43	101746,50	231,77			

		9					
Sensitivity towards sustainable environmental education	Yes	31	9165,50	295,66	4939.50	-2.567	.010
	No	439	101519,50	231,25			
Saving consumption towards sustainable environmental education	Yes	31	7926,50	255,69	6178.50	-.865	.387
	No	439	102758,50	234,07			

According to table 7, it was found that prospective teachers' awareness towards sustainable environment, volunteering towards sustainable environmental education, thrift towards sustainable environmental education and sensitivity towards sustainable environmental education differed in terms of their states of being a member of a non-governmental organization [U(N=470)=5298, z=-2.065, p<.05; U(N=470)=5300, z=-2.064, p<.05; U(N=470)=5166.50, z=-2251, p<.05; U(N=470)=4939.50, z=-2.567, p<.05]. It was found that the prospective teachers who were members of non-governmental organizations had higher awareness towards sustainable environment, volunteering towards sustainable environmental education, thrift towards sustainable environmental education and sensitivity towards sustainable environmental education when compared with prospective teachers who were not members of non-governmental organizations.

As a result of the data obtained, it was found that in terms of awareness towards sustainable environment, prospective teachers who were members of a non-governmental organization had a median of 3.90, while those who were not had a median of 3.670; in terms of volunteering towards sustainable environmental education, prospective teachers who were members of a non-governmental organization had a median of 4.5, while those who were not had a median of 4.13; in terms of thrift towards sustainable environmental education, prospective teachers who were members of a non-governmental organization had a median of 4.33, while those who were not had a median of 4 and in terms of sensitivity towards sustainable environmental education, prospective teachers who were members of a non-governmental organization had a median of 4.6, while those who were not had a median of 4.2.

Results regarding prospective teachers' states of following any print or online publication and their attitudes towards sustainable environmental education

The data obtained from the Mann-Whitney U test conducted in order to find out whether there are differences between prospective teachers' attitudes towards sustainable environmental education in terms of their states of following any print or online publication are presented in table 8:

Table 8.

The data regarding the Mann-Whitney U Test showing whether there are differences between the attitudes of prospective teachers towards sustainable environmental education in terms of their states of following any print or online publication

Factor	Pub.	N	S.T.	S.O.	U	Z	p
Awareness towards sustainable environment	Yes	111	30134,00	271,48	15931.00	-3.198	.001
	No	359	80551,00	224,38			
Thoughts about sustainable environmental education	Yes	111	30564,50	275,36	15500.50	-3.544	.000
	No	359	80120,50	223,18			
Volunteering towards sustainable environmental education	Yes	111	31267,00	281,68	14798.00	-4.110	.000
	No	359	79418,00	221,22			
Thrift towards sustainable environmental education	Yes	111	30586,50	275,55	15478.50	-3.570	.000
	No	359	80098,50	223,12			
Sensitivity towards sustainable environmental education	Yes	111	30466,00	274,47	15599.00	-3.479	.001
	No	359	80219,00	223,45			
Saving consumption towards sustainable environmental education	Yes	111	30320,00	273,15	15745.00	-3.374	.001
	No	359	80365,00	223,86			

According to the results in table 8, it was found that prospective teachers' awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering towards sustainable environmental education, thrift towards sustainable environmental education, sensitivity towards sustainable environmental education and saving consumption towards sustainable environmental education differed in terms of their states of following any print or online publication [U(N=470)=15931, z=-3.198, p<.01; U(N=470)=15500.50, z=-3.544, p<.01; U(N=470)=14798, z=-4.110, p<.01; U(N=470)=15478.50, z=-3.570, p<.01; U(N=470)=15599, z=-3.479, p<.01; U(N=470)=15745, z=-3.374, p<.01]. It can be seen that prospective teachers who followed any print or online publication had higher awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering towards sustainable environmental education, thrift towards sustainable environmental education, sensitivity towards sustainable environmental education and saving consumption towards sustainable environmental education than prospective teachers who did not follow any print or online publications. It was found that in terms of awareness towards sustainable environment, prospective teachers who followed any print or online publication had a median of 3.80, while those who did not had a median of 3.70; in terms of thoughts about sustainable environmental education, prospective teachers who followed any print or online publication had a median of 4.46, while those who did not had a median of 4.27; in terms of volunteering towards sustainable environmental education, prospective teachers who followed any print or online publication had a median of 4.50, while those who did not had a median of 4.13; in terms of thrift towards sustainable environmental

education, prospective teachers who followed any print or online publication had a median of 4.33, while those who did not had a median of 4.00; in terms of sensitivity towards sustainable environmental education, prospective teachers who followed any print or online publication had a median of 4.40, while those who did not had a median of 4.00 and in terms of saving consumption towards sustainable environmental education, prospective teachers who followed any print or online publication had a median of 4.50, while those who did not had a median of 4.25.

Results regarding prospective teachers' states of needing education on sustainable environment and their attitudes towards sustainable environmental education

The data obtained from the Mann-Whitney U test conducted in order to find out whether there are differences between prospective teachers' attitudes towards sustainable environmental education in terms of their states of needing education on sustainable environment are presented in table 9:

Table 9.

The data regarding the Mann-Whitney U Test showing whether there are differences between the attitudes of prospective teachers towards sustainable environmental education in terms of their states of needing education on sustainable environment

Factor	Edu.	N	S.T.	S.O.	U	Z	p
Awareness towards sustainable environment	Yes	315	80732,00	256,29	17863.00	-4.739	.000
	No	155	29953,00	193,25			
Thoughts about sustainable environmental education	Yes	315	78251,50	248,42	20343.50	-2.944	.003
	No	155	32433,50	209,25			
Volunteering towards sustainable environmental education	Yes	315	80447,00	255,39	18148.00	-4.537	.000
	No	155	30238,00	195,08			
Thrift towards sustainable environmental education	Yes	315	80086,00	254,24	18509.00	-4.283	.000
	No	155	30599,00	197,41			
Sensitivity towards sustainable environmental education	Yes	315	80308,50	254,95	18286.50	-4.451	.000
	No	155	30376,50	195,98			
Saving consumption towards sustainable environmental education	Yes	315	79643,50	252,84	18951.50	-3.982	.000
	No	155	31041,50	200,27			

According to the results in table 9, it was found that prospective teachers' awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering towards sustainable environmental education, thrift towards sustainable environmental education, sensitivity towards sustainable environmental education and saving consumption towards sustainable environmental education differed in terms of their states of needing education on sustainable environment [U(N=470)=17863, z=-4.739, p<.01; U(N=470)=20343.50, z=-2.944, p<.01; U(N=470)=18148, z=-4.537, p<.01; U(N=470)=18509, z=-4.283, p<.01; U(N=470)=18286.50, z=-4.451, p<.01; U(N=470)=18951.50, z=-3.982, p<.01]. It can be seen that prospective teachers who needed education on sustainable environment had

higher awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering towards sustainable environmental education, thrift towards sustainable environmental education, sensitivity towards sustainable environmental education and saving consumption towards sustainable environmental education than prospective teachers who did not need education on sustainable environment.

It was found that in terms of awareness towards sustainable environment, prospective teachers who needed education on sustainable environment had a median of 3.80, while those who did not had a median of 3.50; in terms of thoughts about sustainable environmental education, prospective teachers who needed education on sustainable environment had a median of 4.43, while those who did not had a median of 4.18; in terms of volunteering towards sustainable environmental education, prospective teachers who needed education on sustainable environment had a median of 4.25, while those who did not had a median of 4.00; in terms of thrift towards sustainable environmental education, prospective teachers who needed education on sustainable environment had a median of 4.17, while those who did nothad a median of 3.83; in terms of sensitivity towards sustainable environmental education, prospective teachers who needed education on sustainable environment had a median of 4.20, while those who did not had a median of 4.00 and in terms of saving consumption towards sustainable environmental education, prospective teachers who needed education on sustainable environment had a median of 4.50, while those who did not had a median of 4.00.

Discussion, Conclusion and Recommendations

The concept of sustainability is a concept that is just at the core of economy, environment and energy triangle and in this respect, it is an issue discussed by social scientists, science and nature scientists, local and international environmental organizations, politicians, governments and intergovernmental organizations (Yeni, 2014). In today's world, where the resources are consumed rapidly, humans act without considering the limitations of the resources in nature and future generations can become pessimistic by thinking that they will not find anything for themselves in nature; the concept of sustainability has begun to become more prominent because nature itself is a resource and it has limitations (Yavuz, 2010). For this reason, human beings should be aware of this issue and show attitudes and approaches suitable for sustainability while using nature for individual or social needs (Koçak & Balcı, 2010). It is known that environmental problems basically depend on our way of life in the society and social and individual solutions should be found to these problems; environmental education should aim for individuals to have an individual and social mobility today and in the future (Jensen & Schnack, 1997). Thanks to environmental education, it will be possible for individuals to develop consciousness, knowledge and awareness on the issues of sustainability, environmental attitude, environmental awareness, and environmental literacy awareness (İçen-Kükürt, 2021).

The success of environmental education depends on not how widespread it is, but on how much the quality and critical potential of this education can be improved by drawing a clearer environmental education profile, which is a way to be successful on this issue in the future (Breiting & Mogensen, 1999). It is also possible to see concrete examples of this in the literature. In the study conducted by Şahin, Cerrah, Saka and Şahin (2004) it was determined that an environmental education course that would increase the development of hand skills

and mental development of students and ensure active participation was seen as more enjoyable by students and was effective on their success. Therefore, it can be mentioned that an effective environmental education can have positive effects on students. In this sense, individuals should be taught environmental awareness from a young age to become responsible individuals and an effective and efficient education can be provided through environmental education (Alım, 2006). The aim of this study is to find out the levels of attitude prospective teachers have towards sustainable environmental education in terms of their department, gender, familial socio-economic level, states of being member of a non-governmental organization related with sustainable environment, states of following a print or online publication and states of needing an education related with sustainable environment. Finding out the attitude levels of these individuals in terms of sustainable environmental education can provide a prediction about their level in terms of the education they will provide to their students in the future. The first variable examined in the study is the department variable. In this sense, as can be understood from the data in table 5, a significant difference was found between the attitudes of prospective teachers studying at Science Teaching department and the attitudes of prospective teachers studying at Social Studies Teaching department ($p<0.01$); the attitudes of prospective teachers studying at Science Teaching department were found to be higher than those of prospective teachers studying at Social Studies Teaching department. Caner (2019) showed that prospective social sciences teachers had higher environmental problems attitude scores than prospective Science Education teachers. In this sense, the results of the study are different from the results of this study. In their study, Çimen and Benzer (2019) collected data about Sustainable Environmental Attitude Scale and found results in favour of prospective teachers studying at Science Teaching department when compared with prospective teachers studying at primary education teaching department. In this sense, it can be said that the results obtained from this study are similar to the results found in the study. Similar to this study, another study was conducted in which sustainable environmental attitude levels of prospective teachers of primary education and science teaching departments were examined (Başaran-Uğur, Bektaş & Güneri, 2019); however, no difference was found between sustainable environmental attitude scale scores of prospective teachers studying at Primary Education Teaching and Science Teaching department based on the common effect of department-year of study. In this sense, this result of this study that prospective teachers studying at Science Teaching department have higher attitudes than those of prospective teachers studying at Social Studies Teaching department brought a new finding to literature. This result may be due to the fact that courses in Science Teaching program are more closely associated with topics such as environment and sustainability.

In terms of factors, female prospective teachers were found to have higher awareness towards sustainable environment, volunteering, thrift, sensitivity and saving consumption towards sustainable environmental education levels than male prospective teachers. Çimen and Benzer (2019) compared attitudes of prospective teachers towards sustainable environment in terms of the variable of gender; however, unlike this study, they did not find a significant difference between female prospective teachers and male prospective teachers. Similar to our study, in a study which examined the sustainable consumption behaviors and knowledge levels of prospective science and social studies teachers, Ateş (2018) found that women showed more sustainable consumption behaviors and had more knowledge on the

issue than men. In this sense, Ateş (2018) provided data that support this study. At this point, it can be stated that female students' having higher knowledge levels on sustainable consumption may have affected their showing sustainable consumption behavior.

In a study examining attitudes towards sustainable environment in terms of the variable of prospective geography teachers, Aydın and Ünaldı (2013) showed a similar result with this study by showing a difference in favor of female students. Aydın and Ünaldı (2013) showed in their study that female students had higher sustainable environmental attitude scores than male students. While Belen (2020) on the one hand supported this study by showing that the results of female students were positively significant when compared with male students in terms of sustainable environment achievement test results, on the other hand showed a different result from this study by stating that there were no significant differences between female students and male students in terms of attitudes towards sustainable environment. It is thought that the reason why female students have higher attitudes towards the environment is because they are more interested, more informed and more conscious about the environment and issues related with the environment.

In this study, it was found that prospective teachers' awareness, volunteering, thrift, sensitivity and saving consumption towards sustainable environment and thoughts about sustainable environmental education did not differ in terms of the socioeconomic level of their families. Similar to this study, Çimen and Benzer (2019) showed in their study that prospective teachers' familial level of income did not have an effect on their attitudes towards sustainable environment. Ateş (2018) found a result different than this study by showing that level of income was inversely correlated with level of knowledge and directly correlated with sustainable consumption behaviors. In their study conducted on 8th graders, Demirtaş and Çinici (2019) showed that sustainable environment attitudes of students increased as their monthly family income increased. Thus, they showed a result different from the results of this study.

In addition to all findings and studies conducted in the field, it is thought that attitudes towards sustainable environment will be affected not by the socio-economic levels of families, but by trainings in the field, individuals' awareness levels and their sensitivity towards the environment. This is because based on the fact that behaviors are shaped by knowledge and awareness, it is thought that regardless of the socio-economic level of the family, individuals cannot show a sustainable consumer behavior if they do not have a sensitivity towards the environment.

It was found that prospective teachers who were members of non-governmental organizations had higher awareness towards sustainable environment, volunteering, thrift and sensitivity towards sustainable environmental education when compared with prospective teachers who were not members of non-governmental organizations. In their study they examined the sustainable environmental behavior levels of prospective pre-school teachers, Karademir, Uludağ and Cingi (2017) showed that there was no statistically significant association between prospective teachers' states of being members of non-governmental organizations related with the environment and their behaviors towards sustainable environmental education and they stated that a large number of prospective teachers in their study were not members of a non-governmental organization. Although these results are

different than the results of this study in an aspect, they are similar in another aspect. In this study, it was found that a large number of prospective teachers were not members of a non-governmental organization. Whereas it can be stated that being a member of a non-governmental organization increases sensitivity towards sustainable environment, volunteering and thrift.

In this study, it was found that prospective teachers who followed any print or online publication had higher awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering, thrift, sensitivity and saving consumption towards sustainable environmental education than prospective teachers who did not follow any print or online publications. In their study, Çelik and Doğru (2019) did not find a statistical difference between prospective science teachers' states of following a publication about the environment and their behavior scores related with environmental problems. This result of the study is different from this study in this respect. In a study entitled "the determination of awareness of prospective science and social studies teachers on sustainable development", Türer (2010) showed that there were no environmental, general, economic and social differences between the state of following a monthly publication and sustainable development. Therefore, this result of Türer (2010) is similar to the result found in this study. It is thought that since following printed or online publications contributes to individuals about issues such as awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering, thrift, sensitivity and saving consumption towards sustainable environmental education, it creates positive effects in these fields.

It was found that prospective teachers who needed education on sustainable environment had higher awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering, thrift, sensitivity and saving consumption towards sustainable environmental education than prospective teachers who did not need education on sustainable environment.

Certain suggestions can be made based on the results found in this study:

First of all, in terms of department, attitudes of prospective science teachers were found to be higher than those of prospective social studies teachers. It is thought that the reason for this is the fact that there are courses related with the environment, sustainability and nature in the curriculum of science teaching department. For this reason, the curriculum of social science teaching department can include courses in which such subjects can be dealt with more intensely. It is seen that environmental education courses are given to the students of Science Education, Pre-School Education and Primary Education at the basic level. For this reason, there may not be a difference between the other departments and the Department of Science Education. However, since there are no such courses in the Social Science Education program, it is thought that there may be a difference between the Department of Science Education and the Department of Social Studies Education.

Based on the fact that female prospective teachers had higher levels of volunteering, sensitivity, awareness, thrift and saving consumption towards sustainable environmental education than male prospective teachers, an environmental education program including such titles can be given to male prospective teachers.

In this study, since prospective teachers who were members of non-governmental organizations had higher levels of volunteering, sensitivity, awareness and thrift towards sustainable environmental education when compared with prospective teachers who were not members of non-governmental organizations, it can be recommended to encourage prospective teachers to be members of non-governmental organizations.

It was found that prospective teachers who followed any print or online publication had higher thoughts about sustainable environmental education, awareness, thrift, volunteering, saving consumption and sensitivity towards sustainable environmental education than prospective teachers who did not follow any print or online publications. Therefore, raising the awareness of prospective teachers about following print and online publications on the environment and to direct them to subscribe to such resources may be effective.

It was found that prospective teachers who needed education on sustainable environment had higher awareness towards sustainable environment, thoughts about sustainable environmental education, volunteering, thrift, sensitivity and saving consumption towards sustainable environmental education than prospective teachers who did not need education on sustainable environment. Therefore, providing education to prospective teachers on sustainable environment and including more courses on these issues in the curriculum may be an effective solution.

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