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The Relationship Between Sustainable Consciousness and Environmental Awareness Sensitivity Level in the Context of Sustainable Development

Sürdürülebilir Kalkınma Bağlamında Sürdürülebilir Bilinç ve Çevre Bilinci Duyarlık Düzeyi İlişkisi

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ABSTRACT: In light of the changes and developments that have gained momentum in the 21st century, it is emphasized that the development process should be made sustainable and functional in today's rapidly globalizing societies. As a part of social life, it is important for individuals to adapt to sustainability. Within the scope of sustainable development goals, the issue of a sustainable environment for sustainable societies also comes to the fore. In this context, qualified education is emphasized for individuals and societies with sustainable awareness and awareness of environmental sensitivity. As a matter of fact, it is noteworthy that it is necessary to determine the levels of sustainable awareness and environmental awareness for sustainable development of teacher candidates who will be the educational veterans of the future. This study aims to examine the relationship between teacher candidates' sustainable awareness and environmental awareness levels for sustainable development. The research process was carried out with the relational screening model, which is one of the quantitative research methods, in accordance with the purpose and content of the study. In this study, the 'Sustainable Consciousness Scale' prepared by Michalos et al. (2012), adapted by Yüksel & Yıldız (2019), and the 'Environmental Sensitivity Scale' prepared by Yeşil & Turan (2020) were used. The data obtained were analyzed with the statistical analysis program. According to the descriptive statistics, it was seen that none of the data showed normal distribution, and group comparisons were made with the Mann-Whitney U test and Kruskal Wallis tests. As a result, it is understood that sustainable awareness and environmental awareness awareness levels for sustainable development are interrelated and reflected in the opinions of teacher candidates. It is thought that sustainable awareness and environmental awareness can be implemented by designing purposeful activities in schools to encourage the transformation of sustainable awareness and environmental awareness levels into behavior in individual and social life and that

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sustainable awareness and environmental awareness can be discussed in different education forums to support sustainable society.

Keywords: Environmental awareness, sensitivity, qualified education, teacher candidate, sustainability, sustainable awareness.

ÖZ: 21. yüzyıl ile ivme kazanan değişim ve gelişimler ışığında, günümüzün hızla küreselleşen toplumlarında kalkınma sürecinin sürdürülebilir ve işlevsel kılınması gerekliliği vurgulanmaktadır. Toplumsal yaşamın bir parçası olarak bireylerin sürdürülebilirliğe uyumu önem arz etmektedir. Sürdürülebilir kalkınma hedefleri kapsamında sürdürülebilir toplumlar için sürdürülebilir çevre konusu da öne çıkmaktadır. Bu bağlamda sürdürülebilir bilinç ve çevreye karşı duyarlı olma farkındalığına sahip birey ve toplumlar için nitelikli eğitim vurgusu yapılmaktadır. Nitekim geleceğin eğitim neferleri olacak olan öğretmen adaylarının da sürdürülebilir kalkınma için sürdürülebilir bilinç ve çevre bilinci duyarlık düzeylerinin tespit edilmesi gerekliliği dikkat çekmektedir. Bu araştırmanın amacı sürdürülebilir kalkınma için, öğretmen adaylarının sürdürülebilir bilinçleri ile çevre bilinç duyarlılık düzeyleri arasındaki ilişkinin incelenmesidir. Araştırma süreci, çalışmanın amaç ve içeriğine uygun olarak nicel araştırma yöntemlerinden ilişkisel tarama modeli ile yürütülmüştür. Araştırmada, Michalos vd., (2012) tarafınca hazırlanan, Yüksel ve Yıldız (2019) tarafından uyarlanan 'Sürdürülebilir Bilinç Ölçeği' ile Yeşil ve Turan (2020)'ın hazırladığı 'Çevre Duyarlılığı Ölçeği' kullanılmıştır. Elde edilen veriler, istatistiki analiz programı ile analiz edilmiştir. Tanılayıcı istatistiklere göre hiçbir verinin normal dağılım göstermediği görülmüş ve grup karşılaştırmaları Mann-Whitney U testi ve Kruskal Wallis testleri ile yapılmıştır. Sonuç olarak, sürdürülebilir kalkınma için sürdürülebilir bilinç ve çevre bilinci duyarlık düzeylerinin birbiriyle ilişkili olup, öğretmen adaylarının görüşlerine yansıdığı anlaşılmaktadır. Sürdürülebilir bilinç ve çevre bilinç duyarlık düzeylerinin bireysel ve toplumsal yaşamda davranışa dönüşmesinin teşviki için okullarda amaca yönelik etkinlikler tasarlanmak suretiyle uygulanabileceği ve farklı eğitim forumlarında sürdürülebilir toplumun desteklenmesi için sürdürülebilir bilinç ve çevre bilinç duyarlığının tartışılabilir olduğu düşünülmektedir.

Anahtar sözcükler: Çevre bilinci, duyarlık, nitelikli eğitim, öğretmen adayı, sürdürülebilirlik, sürdürülebilir bilinç.

1. INTRODUCTION

Today, when development and change accelerate in a global context, the concept of sustainability comes to the fore. Drawing attention to sustainability in the context of the effective use of resources (Kayahan & Çevik, 2021, 3) has been seen as a basic requirement in recent years (Kaya & Tomal, 2011, 50). Within the scope of sustainable development goals based on the promotion of social progress on the basis of a certain consciousness and awareness, the issue of sustainability is discussed conceptually (Çimen & Benzer, 2019, 527). Adopting sustainability in individual and social progress based on the principles of socialization in the context of sustainable development reflects the basis of the quality education understanding of the recent period (Nasibulina, 2015, 1077; Yılmaz et al., 2022, 3). Within a sustainable and qualified education framework, the issue of creating a conscious and sensitive society is emphasized (Öztürk Demirbaş, 2015, 303). In this context, it is prioritized to make individuals comprehend sustainability in line with qualified education (Erkal et al., 2011, 151). It is thought that individuals and societies that have adopted a sustainable understanding may be sensitive to problems, phenomena, and situations in individual and social life by having a sustainable consciousness (Dal & Özdemir, 2020, 207). As a matter of fact, the concept of sustainable consciousness draws attention within the scope of gaining social sensitivity and awareness (Hyytinen et al., 2023, 121).

The concept of sustainable consciousness emphasizes a sustainable sensitivity to environmental events, factors, problems, and themes (Rojter, 2012, 811). It is believed that individuals who have gained sustainable awareness will be pioneers in forming the societies of the future and will contribute to the social development process (Nasibulina, 2015, 1078). Therefore, it is important that individuals who act in accordance with the requirements of the age, follow the current, and catch up with the age have a sustainable consciousness in the qualified education process (Bayram & Çengelci Köse, 2023, 503). It is emphasized that individuals who participate in social life with sustainable consciousness and contribute to social development within the scope of sustainability will develop by supporting socialization (Stansfield, 2020, 5). It is also known that individuals who participate in social life with sustainable consciousness and are aware of the phenomena and situations around them develop their environmental sensitivity. From this point of view, it is emphasized that individuals should be aware of environmental factors and have behaviors sensitive to these factors in the process of sustainable and qualified education (Zenelaj, 2013, 229; Nazarenko & Kolesnik, 2018, 64). As in all areas of life, the issue of sustainability of environmental processes comes to the fore at this point (Vinokurova et al., 2015, 316). As a matter of fact, with a sustainable understanding in line with achieving sustainable development goals, emphasis is placed on sustainability in the education process in order to access environmentally conscious and sensitive societies (Parris & Kates, 2003, 560; Auger et al., 2010, 136; Wamsler, 2020, 113).

Developing environmental sensitivity with a sustainable understanding in terms of the protection and effective use of environmental resources (Panov, 2013, 380; Tze San et al., 2022, 39) constitutes one of the main issues of educational environments (Kavaz & Öztoprak, 2019, 150). In raising future generations of individuals sensitive to environmental phenomena, situations, problems, and resources, attention is drawn to the importance and necessity of educational environments and processes in this respect (Çiftçi & Kayaer, 2022, 95). By emphasizing the development of environmental sensitivity in educational environments, it is aimed to raise participatory individuals with sustainable awareness, high social awareness, responsible, effective and compatible with the social structure (Abbas & Singh, 2014). On the basis of learning to learn within the scope of a qualified and sustainable education approach, the issue of gaining awareness of sustainable consciousness and environmental factors for individual and social progress (Hopkins & Mckeown, 1999, 25; Kostenko & Kuzmenko, 2021, 291) is included in the

education process as one of the leading requirements of the day (Sauvé, 1996, 8; Savelyeva & Douglas, 2017, 220). Participation in social life by contributing to sustainable development following the age requirements and exhibiting sustainable awareness and environmentally sensitive behaviors (Ergün & Çobanoğlu, 2012, 98) is always considered an up-to-date requirement in educational environments.

Within the scope of this requirement, it is aimed to contribute to the relevant field literature within the scope of supporting the qualified education process by examining the relationship between sustainable awareness and environmental awareness levels of teacher candidates who will raise the new generation as educators of the future in the context of sustainable development goals. In this respect, the study aims to address the relationship between teacher candidates' sustainable awareness and environmental awareness levels for sustainable development. Based on the purpose of the research, what is the relationship between the sustainable awareness of teacher candidates and their environmental awareness levels in terms of various variables for sustainable development in the study process and seeks the answer to this question? Thereby, this research focuses on teacher candidates for sustainable development goals sustainable awareness, and environmental awareness. In respect to this, research differs from other studies.

2. METHOD

Regarding the study, information about the research model, study group, data collection, and analysis are given in this section.

2.1. Research Model

This research was carried out with the quantitative research method and relational screening model to reveal the relationship between the sustainable awareness of teacher candidates and their environmental awareness levels for sustainable development. In studies using quantitative research, it is known that researchers try to reach generalizable information by acting from an objective perspective and benefit from numerical data in this direction (Sukamolson, 2007, 2). In addition, in studies conducted based on quantitative research processes, the measurement and evaluation step comes to the fore (Holton III & Burnett, 2005, 30; Kuş, 2012, 105; Watson, 2015, 10). While screening studies provide the opportunity to reach the opinions of the participants about the research topic, it is known that the relational screening model is an issue that bases the relationship between variables in decisive studies where detailed opinions of the participants on a subject should be consulted (Büyüköztürk et al., 2022, 184). At the beginning of the implementation process of the study, all necessary permissions were obtained from the relevant institutional units and scale preparers following the procedure. Following the process, before the scale application process, it was stated that all participating teacher candidates would voluntarily participate in the application and if they wished, they could leave the process at any stage. In the online application process section, before the scales, there is voluntary participation information that the participants mark their preferences and indicate whether they will continue the process. While the fact that teacher candidates are studying at different programs and different grade levels within the faculty to participate in the implementation process is considered as a ‘participation criterion’ in the study criterion sampling, in terms of effective participation in the process and accessibility. In research criterion sampling is preferred, while participants participate in the process, in accordance with the

purpose of the research, it is expected to have certain qualifications. (Baltacı, 2018, 246; Patton, 2002, 238).

2.2. Study Group

In this study, which aims to reveal the relationship between the sustainable awareness of teacher candidates and their environmental awareness levels within the scope of sustainable development, the study group of the research consists of 368 teacher candidates studying in different departments within the faculty of education at a state university in the Western Black Sea Region and voluntarily participating in the implementation process. Although 370 people were involved in the application process, 2 people who did not respond fully to the scales were not included in the analysis process.

In addition, the fact that the teacher candidates representing the study group continued their education at the 1st, 2nd, 3rd, and 4th-grade levels of all departments within the faculty was determined as the participation criterion of the study. The study was carried out with participation through the online platform (Google Forms) in the spring semester of the 2022-2023 academic year. The findings regarding the personal information of the participant teacher candidates are given in Table 1.

Table 1: *Distribution of Participants According to Personal Information*

		f	*%*			*f*	*%*
Gender	Male	257	69.8		English Language Teaching	37	10,1
	Female	111	30,2		Science Teaching	19	5,2
Environmental organization membership	Yes	90	24.5		Elementary Mathematics Teaching	19	5,2
	No	278	75.5	Department	Psychological Counseling and Guidance	19	5,2
Grade	1	41	11,1		Painting Teaching	11	2,8
	2	134	36,4		Classroom Teaching	56	15.2
	3	117	31,8		Social Studies Teaching	150	40,8
	4	76	20.7		Turkish Teaching	57	15,5

When Table 1 is examined, it is understood that 257 (69.8%) of the teacher candidates who participated in the research process were male, and 111 (30.2%) were female, a total of 368 people. Of the teacher candidates who participated in the study, 41 (11.1%) were in the first grade, 134 (36.4%) were in the second grade, 117 (31.8%) were in the third grade, and 76 (20.7%) were in the fourth grade. While 37 (10.1%) of the participants were trained in English Language Teaching, 19 (5.2%) in Science Teaching, 19 (5.2%) in Elementary Mathematics Teaching, 19 (5.2%) in Psychological Counseling and Guidance, 11 (2.8%) in Painting Teaching, 56 (15.2%) in Classroom Teaching, 150 (40.8%) in Social Studies Teaching, 57 (15.5%) in Turkish Teaching program; it is known that 90 (24.5%) of the participants were members of any environmental organization and 278 (75.5%) were not members.

2.3. Data Collection Tools

In the study, the ‘Sustainable Consciousness Scale' prepared by Michalos et al. (2012) and adapted by Yüksel & Yıldız (2019) and the ’Environmental Sensitivity Scale’ prepared by Yeşil & Turan (2020) were used during the scale implementation phase. At the beginning of the scale application process, the necessary permissions were obtained from the preparers of the scales to be used in the study. The sustainable Consciousness Scale is a scale with 3 basic sub-dimensions prepared in a 5-point Likert Type and Likert expressions are listed as "completely agree, agree, partially agree, disagree, strongly disagree". Each sub-dimension of the scale, which has the sub-dimensions of ‘Knowledge, Attitude, Behavior‘, includes basic factors such as’ economic, social and environmental’. The scale, consisting of 50 items, was prepared to measure the sustainable consciousness levels of teacher candidates (Yüksel & Yıldız, 2019). The Environmental Sensitivity Scale consists of 20 items and 5 sub-dimensions and is prepared in a 5-point Likert Type. Likert expressions are listed as‘ never, rarely, occasionally, often, always’. The scale, which was prepared to determine the environmental awareness levels of prospective teachers, consists of the ‘knowledge/emotion factor, sensitive behavior, attentive behavior, energy/product saving and recycling’ sub-dimensions and various items for environmental awareness (Yeşil & Turan, 2020). Likert-type scales are generally seen as a frequently used type of measurement, especially in basic areas compatible with the nature of social sciences. In such studies, it is possible to reach a general judgement/evaluation in the measurement of the subject studied by focusing on the order of importance of various situations such as emotion, thought, basic judgement, etc. (Küçük, 2016, 80).

Cronbach α issued for Sustainable Consciousness Scale 0.860, Environmental Sensitivity Scale as given 0.845.

2.4. Data Collection and Analysis

At this stage, a quantitative analysis was conducted to assess the relationship between teacher candidates' sustainable consciousness and their environmental awareness levels. The scale was applied, and the participants' views on the topic were also explored. In the quantitative application stage, two scales were utilized: the 'Sustainable Consciousness Scale,' originally developed by Michalos et al. (2012) and later adapted by Yüksel & Yıldız (2019), and the 'Environmental Sensitivity Scale,' prepared by Yeşil & Turan (2020). The data collection for this study was conducted online using Google Forms, in alignment with the remote education process. During the application process, all data collected from teacher candidates with scale applications during the quantitative application phase were analyzed and reported through the statistical analysis program.

In order to understand whether all the data obtained from the application process showed normal distribution, a normality test was performed at the beginning of the analysis process. The descriptive findings of the scale and its sub-dimensions regarding the Sustainable Consciousness Scale and the Environmental Awareness Level Scale are given in Table 2.

Table 2: *Sustainable Consciousness Scale and Environmental Awareness Level Scale and Sub-Dimensions Descriptive Statistics*

	n	*Min*	*Max*	*Mean*	*SD*	*Distortion*	*Kurtosis*	*Normality*		α
								SW	*p*	
Knowledge - Social	368	19	35	30,40	3.52	-0.52	-0.19	0,94	<0.001	
Knowledge - Environment	368	12	25	20.97	2,67	-0,21	-0,23	0.95	<0.001	
Knowledge - Economic	368	13	25	22.22	2,53	-0,85	0.31	0,90	<0.001	
Knowledge - Total	368	44	85	73,59	7,47	-0,57	0.34	0,97	<0.001	.849
Attitude-Social	368	15	30	27.15	3.02	-1.19	1,38	0.86	<0.001	
Attitude - Environment	368	5	20	13.31	2,80	0.87	0,19	0,89	<0.001	
Attitude - Economic	368	9	20	18,01	2,02	-1.11	1.61	0.86	<0.001	
Attitude - Total	368	33	70	58,47	5,85	-0.46	1,04	0,97	<0.001	0.749
Behavior - Environment	368	13	30	20.60	3.43	0,53	0,43	0,97	<0.001	
Behavior- Social	368	12	30	22,89	3.19	-0.11	0,20	0,98	<0.001	
Behavior - Economic	368	8	20	14,09	2,54	0.35	-0.05	0,97	<0.001	
Behavior - Total	368	34	80	57-59	7,69	0,59	0,83	0,97	<0.001	0.789
Knowledge-Emotion Factor	368	8	40	34/45	8.40	-2.15	3.72	0,66	<0.001	
Responsive Behavior	368	3	15	12,28	2,20	-1,17	2,43	0,90	<0.001	
Attentive Behavior	368	3	15	12,86	2.21	-1,67	4,05	0,83	<0.001	
Energy – Product Saving	368	2	10	8,06	1.73	-1.09	1,41	0,88	<0.001	
Recycling	368	4	20	15,36	3.51	-0.65	0,13	0,94	<0.001	
Environmental Awareness Total	368	20	100	83,01	14,15	-1.62	3.56	0.87	<0.001	.939

According to Table 2, the knowledge scale mean score was 73.59±7.47, while the attitude scale mean score was 58.47±5.85; the behavior total mean score was 57.59±7.69, and the environmental awareness total mean score was 83.01±14.15. During the evaluation of scale reliability, Cronbach's alpha (α) internal consistency coefficient, which is one of the frequently used criteria, is examined. In this context, the Cronbach α internal consistency coefficient was also calculated to determine the reliability of the scores obtained from the scales. The Cronbach α internal consistency coefficient was calculated

as 0.849 for the knowledge subscale scores, 0.749 for the attitude subscale scores, 0.789 for the behavior subscale scores, and 0.939 for the environmental sensitivity scale total scores.

When the descriptive statistics in Table 2 were examined, it was seen that none of the scores showed a normal distribution at the level of 0.01, and group comparisons were made with the Mann-Whitney U test and Kruskal Wallis tests.

Ethical board approval

Ethical approval was obtained from for this study.

3. FINDINGS

In this part of the research, the findings obtained from the data obtained within the scope of the purpose of the study and the comments on the findings are included.

Findings on the relationship between the sustainable consciousness scale and the level of environmental awareness

Findings regarding the relationship between prospective teachers' sustainable awareness and environmental awareness levels are given in Table 3.

Table 3: *Group Comparisons of Teacher Candidates' Sustainable Consciousness and Environmental Awareness Levels*

	Gender		Whether or not to become a member of the Environmental Organization		Department	Grade
	Mann-Whitney U	Z	Mann-Whitney U	Z	Kruskal-Wallis H	Kruskal-Wallis H
Knowledge -Social	13201	-1.14	11159.5	-1.55	14,01	0,03
Knowledge - Environment	14230	-0,04	11848	-0,76	10,12	1,65
Knowledge - Economic	14218	-0.05	11904	-0.70	25.63* *	0,81
Knowledge - Total	13503	-0,81	11354.5	-1,32	20,06	0.52
Attitude-Social	11307.5	3-22	11171,5	-1,56	17.23	2,47
Attitude - Environment	12679	-1.72	11887	-0,72	15,51	5,95
Attitude - Economic	12995	-1,39	10196.5	2 ' 70	25, 26	3.21
Attitude - Total	12914	-1,44	10912.5	-1,83	28, 39	1,97
Behavior - Environment	14007,5	-0.28	11484.5	-1,18	11.18	5.99
Behavior-Social	13573	-0,74	7917.5	-5,26** *	10,40	9,93
Behavior - Economic	13532	-0.79	10406.5	2- 42	10,08	9; 37.
Behavior - Total	14240	-0.03	9336	3-62	14.34	11-21
Knowledge - Emotion	11654.5	2- 83	11833.5	-0.78	3.22	0,73

Responsive Behavior	11523.5	2/96	10797.5	1.98	6.31	1.73
Attentive Behavior	12642	-1,77	12346	-0.19	10.93	0,69
Energy – Product Saving	13494	-0.84	12263.5	-0.29	10.55	2,10
Recycling	14189.5	-0.08	11473	-1.19	6,47	3.14

*p<0,05;**p<0,01;***p<0,001

When Table 3 is examined,

According to gender, there is a statistically significant difference in terms of attitude-social (U: 11307.5; Z: -3.22; p<0.01), knowledge-emotion (U: 11654.5; Z: -2.83; p<0.01) and sensitive behavior (U: 11523.5; Z: -2.96; p<0.01) scores. The mean and standard deviation values for the groups are given in Table 4.

According to the examination of whether they are members of the environmental organization, there is a statistically significant difference in terms of attitude-economic (U: 10196.5; Z: -2.7; p<0.01), behavior-social (U: 7917.5; Z: -5.26; p< 0.001), behavior-economic (U: 10406.5; Z: -2.42; p< 0.05), behavior-total (U:9336; Z: -3.62; p <0.001) and sensitive-behavior (U: 11523.5; Z: -2.96; p<0.05) scores. The mean and standard deviation values for the groups are given in Table 4.

According to the examination made according to the grade level, there is a statistically significant difference in terms of behavior-economic (H: 9.37; p<0.05) and behavior-total (H: 11.21; p<0.05) scores. Pairwise comparisons with the groups' mean and standard deviation values are given in Table 5.

In the comparison made according to the department, it is seen that there is a statistically significant difference in terms of information-economic (H: 25.63; p<0.01), information-total (H: 20.06; p< 0.01), attitude-social (H: 17.23; p<0.05), attitude-environment (H: 15.51; p< 0.05), attitude-economic (H: 25.26; p< 0.01), attitude-total (H: 28.39; p< 0.001), behavior-total (H: 14.34; p<0.05) scores. Pairwise comparisons with the groups' mean and standard deviation values are given in Table 6.

Table 4: *Mean and Standard Deviation Values by Gender and Membership Status*

	Gender		Sign Up	
	Male	Female	No	Yes
Attitude-Social	26.51 (3.00)	27.43 (2.99)		
Attitude - Economic			17.86 (2.03)	18.46 (1.90)
Behavior-Social			22.42 (3.22)	24.36 (2.65)
Behavior - Economic			13.93 (2.56)	14.59 (2.44)
Behavior - Total			56.84 (7.73)	59.89 (7.10)
Knowledge - Emotion	33.07 (9.05)	35.05 (8.05)		
Responsive Behavior	11.72 (2.48)	12.52 (2.02)	12.14 (2.28)	12.71 (1.87)

Table 4 compares mean and standard deviation values across different categories, differentiated by gender and membership status. It indicates subtle variations in scores between males and females and between members and non-members across various behavioral, economic, and emotional attitudes and knowledge aspects. Generally, females and members score slightly higher than their male and non-member counterparts in the assessed categories.

Table 5: *Mean and Standard Deviation Values by Class Level*

	Grade				Binary Comparisons
	1	2	3	4	
Behavior - Economic	13.29 (2.36)	13.96 (2.52)	13.98 (2.44)	14.92 (2.71)	1-4*
Behavior - Total	54.69 (6.84)	57.21 (6.68)	56.81 (7.68)	59.92 (8.82)	1-4**

*p<0,05 **p<0,01

Table 5 shows a noticeable trend of increasing mean scores in economic behavior and overall behavior with each advancing class level, from 1st to 4th grade. This trend suggests an improvement in these behaviors as students progress through grades. The standard deviations indicate a consistent variability across different grades. The statistical analysis highlights significant differences in both categories, particularly between the 1st and 4th grades, suggesting developmental growth over the academic years.

Table 6: *Mean and Standard Deviation Values by Class Level*

	Department								Binary Comparisons
	ELT	ST	EMT	PCG	PT	CT	SST	TT	
Knowledge - Economic	22.51 (2.13)	23.42 (2.06)	20.26 (2.73)	20.89 (2.58)	21.75 (2.19)	22.29 (2.16)	22.51 (2.62)	21.88 (2.62)	ST-EMT* EMT-SST*
Knowledge - Total	74.14 (5.95)	76.79 (6.52)	69.95 (7.77)	70.00 (7.00)	70.75 (5.23)	73.75 (6.11)	74.48 (7.99)	72.35 (8.02)	-
Attitude-Social	26.89 (2.90)	28.68 (1.70)	26.42 (3.06)	26.42 (3.72)	26.5 (2.45)	26.86 (2.87)	27.53 (3.09)	26.63 (3.09)	-
Attitude - Environment	13.11 (2.04)	14.05 (3.06)	12.95 (2.59)	13.11 (2.66)	13.00 (2.45)	13.46 (2.78)	13.74 (3.01)	12.18 (2.34)	-
Attitude - Economic	17.95 (1.72)	19.00 (1.29)	16.37 (2.29)	17.42 (2.22)	17.63 (2.07)	17.93 (1.93)	18.29 (2.04)	17.81 (1.99)	ST-EMT* EMT-SST*
Attitude - Total	57.95 (4.53)	61.75 (4.70)	55.74 (5.51)	56.95 (5.39)	57.13 (4.82)	58.25 (5.51)	59.57 (6.14)	56.61 (5.88)	ST-EMT* ST-TT * EMT-SST* SST-TT *

Behavior - Total	57.19 (6.61)	60.00 (7.38)	52.63 (8.67)	57.79 (7.15)	60.13 (6.94)	57.11 (8.50)	58.59 (7.74)	55.82 (6.14)	-

a: ELT: English Language Teaching, ST: Science Teaching, EMT: Elementary Mathematics Teaching, PCG: Psychological Counseling and Guidance, PT: Painting Teaching, CT: Classroom Teaching, SST: Social Studies Teaching, TT: Turkish Teaching

*p<0,05 **p<0,01

Table 6 presents the mean and standard deviation values for various categories across different academic departments. The data shows notable variations in scores among departments. In categories like 'Knowledge - Economic' and 'Attitude - Economic', certain departments (e.g., FBÖ and İMÖ) show significant differences, suggesting department-specific trends in economic understanding and attitudes. The 'Info - Total' and 'Behavior - Total' categories do not show marked differences between departments, indicating a more uniform level of information and behavioral trends across disciplines. While some significant differences exist in specific areas, the general trend suggests a varied but somewhat consistent level of knowledge, attitudes, and behaviors across different academic departments.

Table 7: *Relationships Between Variables*

	Knowledge -Social	Knowledge - Environment	Knowledge - Economic	Knowledge - Total	Attitude-Social	Attitude - Environment	Attitude - Economic	Attitude - Total	Behavior - Environment	Behavior-Social	Behavior - Economic	Behavior - Total	Knowledge - Emotion	Responsive Behavior	Attentive Behavior	Energy – Product Saving
Knowledge - Environment	.48**															
Knowledge - Economic	.73	.50														
Knowledge - Total	89.	.75	87.													
Attitude-Social	.60**	,44	.63	.67												
Attitude - Environment	.28	.23**	.23**	.29**	.09											
Attitude - Economic	-.55	.49	.64	.63	.68	.21										
Attitude - Total	.63	.47	-.66	.69	.80	.56	.81									
Behavior - Environment	.25**	.14	.25**	.26	.20**	.27**	.22**	.33**								
Behavior-Social	.38**	.25**	.35	.39**	.32**	.27**	.38**	.45	.45							
Behavior - Economic	.22**	.17	.25**	.25**	−.15	.26	.24	30	-.55	.47						

Behavior - Total	.35	.23**	.35	.37**	.28	.31*	.35	,44	.83	.78	.79					
Knowledge - Emotion	.34**	.27**	.36**	.38**	,44	.01	.38**	.33**	.09	.22**	.14	.19				
Responsive Behavior	.26	.26	30	.32**	.33**	.09	.33**	.32**	.35	.37**	.31*	.43	.48**			
Attentive Behavior	.22**	.17	.24	.24	.32**	.02	.27**	.25**	.20**	.17	.19	.23**	.46**	.60**		
Energy – Product Saving	.25**	.19	.27**	.28	.32**	.05	.28	.27**	.25**	18.	.23**	.28	.42**	.51**	.59	
Recycling	.28	.13*	.27**	.27**	.25**	.12	.21	.25**	,44	.26	.33**	.43	.39**	.59	.51**	.56

When Table 7 is examined, it is seen that the relationships between attitude-social and attitude-environment dimensions, attitude-environment and knowledge-emotion, sensitive-behavior, attentive-behavior and energy-product saving dimensions, and behavior-environment and knowledge-emotion dimensions are not statistically significant ($p>0.05$). While the relationships between recycling and knowledge-environment and attitude-environment dimensions are statistically significant at the 0.05 level, the relationships between all other variables are statistically significant at the 0.01 level.

These findings suggest that revealing the relationship between teacher candidates' sustainable consciousness and environmental consciousness levels is important in achieving sustainable development and sustainable societies. In this direction, it can be said that the scale applications carried out in the quantitative application step within the study's scope attracted teacher candidates' attention towards sustainable and environmental awareness.

4.DISCUSSION and RESULT

This part of the research includes the results obtained from the study process, discussions, and suggestions.

According to the results of examining the scores obtained from the sustainable consciousness and environmental sensitivity scales of teacher candidates within the scope of sustainable development in terms of gender, membership in an environmental organization, class, and department variables,

It has been observed that female teacher candidates have statistically significantly higher averages in attitude-social, knowledge-emotion, and sensitive-behavior scores compared to male teacher candidates.

Teacher candidates who are members of an environmental organization have statistically significantly higher averages in attitude-economic, behavior-social, behavior-economic, and sensitive behavior scores than those who are not.

In terms of the department,

- Science and social studies teacher candidates have statistically significantly higher average knowledge-economic scores than primary school mathematics teacher candidates.

- Science and social studies teacher candidates have statistically significantly higher average attitude-economic scores than primary school mathematics teacher candidates.
- Science and social studies teacher candidates have statistically significantly higher average total attitude scores than Turkish and primary school mathematics teacher candidates.

4th-grade students have statistically significantly higher average behavior-economic and total behavior scores than 1st-grade students.

When examining the relationships between the sub-dimensions of sustainable consciousness and environmental sensitivity scales of teacher candidates within the scope of sustainable development,

It is seen that the relationships between attitude-social and attitude-environment; attitude-environment and knowledge-emotion, sensitive-behavior, careful-behavior, and energy-product saving; behavior-environment and knowledge-emotion dimensions are not statistically significant ($p>0.05$),

While the relationships between recycling and knowledge-environment and attitude-environment dimensions are statistically significant at the 0.05 level, the relationships between all other variables are statistically significant at the 0.01 level."

In the context of the prominent results of the research, the importance of the department and class level factors draw attention. Concordantly, it is thought that teacher candidates' studying department, course content and grade levels during university education it affect the views of teacher candidates about sustainable consciousness and environmental awareness level. As a result, within the scope of today's quality education approach adorned with sustainable development goals, it is important for individuals to gain sustainable awareness and environmental awareness as remarkable elements and to be able to transfer them to life in a way that has been transformed into behavior. In this respect, it is thought that examining the relationship between sustainable consciousness and environmental awareness level with a sustainable perspective in the context of being a current issue may be significant in terms of contributing to the literature in raising future generations in a sensitive and aware way.

"Nasibulina (2015) underscores the importance of educational environments and processes focusing on sustainability and environmental principles within the scope of sustainable development goals. Yıldız et al. (2021) highlight girls' meaningful participation and positive impact in developing responsive behavior towards sustainability and the environment. The study by Hassan et al. (2010) elucidates the relationship between sustainable consciousness and environmental sensitivity/awareness, and aligns with findings that female students exhibit positive results in sustainable consciousness and environmental awareness compared to male participants. Significant gender-based differences were also revealed, and the results according to the departmental factor in Çimen & Benzer's (2019) study on prospective teachers' understanding of the sustainable environment align with these findings. Öztürk Demirbaş (2015) contributes to these results by emphasizing the necessity of education for awareness and sensitivity acquisition within sustainable development and focusing on the departments of study in a university student cohort. A study focusing on the impact of environmental problems on sustainable consciousness in the context of sustainability indicates that environmental attitudes and behaviors mutually enhance each other and develop positively alongside sustainable consciousness. Ovais (2023) supports this by highlighting the encouraging role of educational environments in fostering conscious and sensitive behavior in sustainability. Furthermore, Rojter (2012) underlines the importance of material-based processes and sustainable consciousness in educational settings, supporting the study's findings on the relationship between sustainability and a sustainable perspective on environmental issues, themes, and environments. Wamsler (2020) draws attention to the inclusive nature of education for

creating a conscious society within sustainable development, while Panov (2013) discusses environmental awareness concerning ecological elements, pioneering concepts of environmental themes and responsibility in sustainability. Zenelaj (2013) also supports these results by emphasizing sustainability, sensitivity to environmental factors, and the promotion of ecological awareness in education for sustainable development. Similarly, Vinokurova et al. (2015) focus on enhancing environmental awareness through sustainable, environment-oriented processes, which is consistent with the findings of this study."

In addition, studies based on sustainable awareness (Nasibulina, 2015; Öztürk Demirbaş, 2015; Savelyeva & Douglas, 2017; Stansfield, 2020) and studies based on environmental awareness and sensitivity (Oğuz et al., 2011; Abbas & Singh, 2014; Altin et al., 2014; Mei et al., 2016; Akçay & Pekel, 2017; Çiftçi & Kayaer, 2022) are considered important in terms of the results of this research.

In addition, studies that come to the fore in the field literature focusing on sustainable awareness and environmental sensitivity within the scope of sustainable development (Hassan et al., 2010; Erkal et al., 2011; Kavaz & Öztoprak, 2019; Kostenko & Kuzmenko, 2021; Yılmaz et al., 2022; Hyytinen et al., 2023) are reflected in the results of this research.

Based on the results of the study;

- This study is limited to the quantitative research process relational screening pattern. Preparation of qualitative and mixed design research with experimental applications in measuring the relationship between sustainable awareness and environmental awareness level in different research,
- Supporting the practices to be carried out with participants from different regions by expanding the sample group in terms of dissemination of sustainable development,
- Promotion of courses for sustainability and environmental awareness to contribute to the adoption of a qualified and sustainable education approach in the process of training teacher candidates,
- It is recommended to contribute to the field by focusing on the subject in various training and discussion environments/forums where information sharing and developer discussions on sustainability are held.

Declaration of Contribution Rate of Authors

1st author's contribution rate to the article is 60%, 2nd author's contribution rate to the article is 40%.

Conflict of interest statement

The authors declared that they have no competing interests.

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