



JER

Osmangazi Journal of Educational Research

Volume 9(2), Fall 2022



RESEARCH

Open Access

Suggested Citation: Can, H., & Özdemir, A. (2022). Examining Pre-service Teachers' Environmental Knowledge and Self-Efficacy Beliefs Regarding Environmental Education. *Osmangazi Journal of Educational Research*, 9(2), 101-118.

Submitted: 20/10/2022 **Revised:** 24/12/2022 **Accepted:** 24/12/2022

Examining Preservice Teachers' Environmental Knowledge and Self-Efficacy Beliefs Regarding Environmental Education

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Abstract. In this study, pre-service teachers' environmental knowledge and self-efficacy beliefs regarding environmental education were compared. A total of 521 students who have been attending their study in science education, social sciences education, primary teaching and pre-school teaching programs at two state universities in Turkey, participated in the study. The data collection tools used in the research consisted of the personal data form, the environmental knowledge test constructed by the researcher, and the self-efficacy beliefs scale for environmental education. According to results of the research, there were differences in the level of environmental knowledge of preservice teachers according to the departments they studied and their gender while there were no significant differences according to the level of classes they studied. Gender differences favoured higher level of knowledge of male preservice teachers. Other differences were generally found to be between preschool preservice teachers and the other preservice teachers. There were significant differences between preservice preschool teachers and the other groups in the dimension of academic competence perception of self-efficacy. The results of the study revealed that preservice preschool teachers had lower scores than other groups in terms of environmental knowledge and self-efficacy beliefs regarding environmental education. There was no relationship between knowledge and self-efficacy beliefs of pre-service teachers. These results shed light on the importance of developing a holistic and systematic teacher training approach in relation with environmental education.

Keywords. Preservice teachers, environmental knowledge, environmental education, self-efficacy.

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Note: This article is the summary of the first author's master thesis entitled "İlköğretim bölümü 1. ve 4. sınıf öğrencilerinin çevreye yönelik bilgi, dünya görüşü ve çevre eğitimine yönelik öz-yeterlik inançlarının karşılaştırılması" under the supervision of the second author.

Today, humanity faces very different environmental problems related to the rapid growth of the world's population and the rapid consumption of Earth's resources. These environmental problems have serious effects such as habitat destruction, increased health problems, reduced water resources, environmental pollution, energy shortages and deterioration of the ecological balance. People have an important role in solving environmental problems as first actors for environmental degradation. An environmentally conscious person is an individual who has attitudes, thoughts and behaviours that will allow him to have a balanced relationship with the environment (Çepel, 1996).

Understanding the basics of environmental behaviour of individuals plays a very important role in the developing environmentally-friendly behaviours. Theories examining the formation of environmental behaviour support that the notion; factors such as an individual's knowledge, attitude, norm, value, perceived behavioural control, perception of responsibility, and belief shape an individual's behaviour related to the environment (Jackson, 2005). Many research conducted aiming at understanding the origins of environmental behaviour. In these research studies, individuals' environmental literacy, attitudes towards the environment, knowledge, and awareness of environmental issues are investigated. When the relevant research is examined as means of relationship between demographic factors with individuals' environmental knowledge and attitudes, there are some inconsistent results. In terms of gender, some research shows that female students have higher knowledge levels than male students (Sadik and Cakan, 2010) while other group of study emphasizes the higher levels of knowledge of male students (O'brien, 2007; Öztürk, 2009). As means of environmental attitudes in general female students have more environmentally-friendly attitudes (Sama, 2003; O'brien, 2007; Tuncer et al., 2009; Teksöz, Şahin, and Ertepinar, 2010; Sadik and Çakan, 2010). In studies that investigate environmental behaviour, there is also a discrepancy in the results in terms of socio-economic level of the family and parents' educational level. In some research parents' educational level has a positive effect on the knowledge levels of students (Negev et al., 2008), and in some studies, there was not a meaningful difference between students as means of their parents' education level (Sağır et al., 2008; Negev et al., 2008). A similar situation has been observed for the socio - economic level. Differences observed between different groups of students from various levels and programs as means of their environmental knowledge (Kaplowitz and Levine, 2005; Oweini and Hourri, 2006; O'brien, 2007, Ozturk, 2009). As class level increased, students' environmental knowledge level also increased (O'brien, 2007).

Education is the key component for achieving environmentally-friendly behaviour for our common future. Environmental education is the process of learning the concepts and gaining the

values necessary to develop the skills and attitudes necessary for an individual to understand their culture and biophysical environment. It has been observed that situations such as taking environmental lessons and participating in environmental projects affect environmental knowledge and attitudes of individuals (Aydemir, 2007; Sadik and Sarı, 2010). The environmental knowledge and attitude of students changed according to their fields of specialization. Environmental knowledge and attitude scores of students studying in science fields such as natural sciences, medicine, agriculture, engineering and veterinary were found to be different and higher than those of students studying in other fields such as business administration, human ecology, education and nursing (Kaplowitz and Levine, 2005; O'brien, 2007; Sarıbas, Teksöz, and Ertepinar, 2014).

Environmental education also covers identification of environmental quality issues and environmental decision-making behaviours (IUCN, 1970) additional to understanding the origins of environment friendly behaviour. Environmental education focused on natural sciences research, field studies, out-of-school environmental activities, peace education, human rights education, future education and sustainability issues, respectively (Palmer, 2002). Today, the concept of sustainability has changed from the perspective of sustainable development to the perspective of environmental sustainability.

The importance of environmental education in Turkey is mentioned and understood more prevalently in recent years. The importance of environmental education has been discussed by government agencies and voluntary organizations, and recommendations on environmental education have been presented in official reports (Tombul, 2006). Environmental education in formal education institutions is addressed from an interdisciplinary point of view. In different courses starting from primary education, the environmental issues sometimes take place as a unit and sometimes as a topic in the learning areas. In a recent curriculum by Ministry of National Education of Turkey (2022), a course entitled Environmental Education and Climate Change is presented as a separate lesson for middle school level. Environmental issues in secondary education are mainly included in science courses, in accordance with primary education. At the college level, the status of environmental education varies according to the programs of specialization. Teacher training programs include obligatory and elective courses regarding environment and environmental education (Council of Higher Education in Turkey, 2007; 2018).

Importance and Purpose of Research

It should not be ignored that teachers are main actors and the most influential component about increasing students' awareness about the environment through effective learning experiences at every stage of education. Preservice teachers who will implement environmental education should know; guiding principles of environmental education, history of development of environmental education, characteristics and goals of environmental education and environmental content. Environmental knowledge is also main component of environmental literacy of individuals. Teachers who have role in guiding students about environmental issues should be environmentally literate. Environmentally literate people are expected to understand how the systems on the Earth work and how human effect these systems. In addition, teachers should have skills to use technology and to access information and be able to take responsibility for environmental education. They should develop and implement environmental education programs consistent with the school's programs to develop a sound understanding, enrich the learning environment for different types of students and adopt lifelong learning strategies (NAAEE, 2007).

Preservice teachers should have necessary knowledge, skills and affective characteristics in order to be successful in environmental education. Self-efficacy beliefs are a part of these affective characteristics. According to Bandura (1997), perceived self-efficacy is the belief that one can make the necessary arrangements and practices to deal with a possible situation. Self-efficacy beliefs affect how one thinks, feels, motivates and behaves. The self-judgment of teacher's own skills is a part of teacher's competency (Tschannen-Moran et al., 1998). Effective teachers have a strong sense of competence in their teaching and think that they can help all their students learning, including the most challenging learners (Moseley and Utley, 2008). Teachers who will give environmental education are expected to have strong self-efficacy beliefs for environmental education in addition to having the necessary environmental knowledge and competencies.

The outcomes of the research analysis show the inadequacy of teacher training in environmental education area indicating low levels of environmental knowledge of preservice science teachers (Alvarez-Garcia, Sureda-Negre, Comas-Forgas, 2015). The main aim of this research is to investigate and compare freshman and senior elementary level pre-service teachers' knowledge of the environment and their self-efficacy beliefs regarding environmental education according to their programs of study and gender. These elementary level pre-service teachers include, science, social sciences, primary school and pre-school teachers.

Research Questions

1. Are there statistically significant differences between pre-service teachers' environmental knowledge with respect to their gender, programs of study and level?
2. Are there statistically significant differences between pre-service teachers' self-efficacy beliefs with respect to their gender, programs of study and level?
3. Is there a statistically significant relationship between pre-service teachers' knowledge of the environment and self-efficacy beliefs regarding environmental education?

Method

In this part of the study research model, sample of the study, data collection tools and processes are explained.

Research Model

This study is quantitative research aiming to explain the differences between groups of preservice teachers and it is a causal comparative research. Causal comparative research aims to identify differences between groups. In these studies, existing groups are compared and the causes of differences between these groups are investigated (Fraenkel, Wallen and Hyun, 2011).

Study Group

A total of 521¹ preservice teachers studying in science, primary, social sciences and preschool teacher training programs at two different state universities in Turkey constitute the study group of this research. Information about the sample of the study is presented in Table 1.

Table 1. *Sample of the Research*

Program of Study	Fresman	Senior	Total	Female	Male
Science	80	86	166		
Primary School	81	51	132	375	146
Preschool	88	59	147		
Social Sciences	40	36	76		

¹ The overall data consists of 971 participants including the preservice teachers conducting their training at night education at the masters thesis that it is the source of this article. The data is refined and analysed again for this article.

Data Collection Tools

In the study, personal information form, the environmental knowledge test and self-efficacy beliefs regarding environmental education scale are used. Personal information form is prepared by the researcher including the questions about PSTs' gender, level and program of study, respectively. The self-efficacy belief scale for Environmental Education was developed by Aydın (2008). It was used to determine the level of self-efficacy beliefs of primary school preservice teachers regarding environmental education. It is a Likert-type scale with 0.76 reliability coefficient and consists of four sub-dimensions: academic competency perception, instructional competence perception, responsibility perception and guiding perception. Validity and reliability values of the scale was calculated by applying to a group of preservice teachers for this study. The dimensional structure of the scale was compatible with the original structure and Cronbach's Alpha reliability coefficient was 0.80 for the research sample. The Environmental Knowledge test was developed by the researcher.

Environmental knowledge test. The Environmental Knowledge test used in the research was developed by the researcher in following steps:

1. The contents of environmental education and environmental science courses in teacher training programs were examined and the scope for the test was determined.

2. A total of 57 multiple choice questions have been prepared including at least four on each topic.

3. These questions were applied to a sample of 200 preservice teachers who did not participate in the main study. Since the difficulty of the test is high and the distinctiveness values are not at the desired level, the test has been reviewed.

4. Questions with high discrimination indexes with new added questions were again tested in a similar group of PSTs. However, the test did not reach the desired level.

5. A new 40-question test was created combining previously tested questions and new questions. Two experts from the field of environmental education and geography education scrutinized the questions for the validity of the content. This test was applied to 345 students who had not performed previous tests.

6. Eventually, 12-question knowledge test was created. Item discrimination and difficulty indexes of the items were examined. The distribution of questions in relation with topics has been taken into account. Item difficulty, item discrimination index and t-test values for discrimination

obtained from the test's trial sample and the distribution of questions by topics are presented in Table 2. Sample questions from the test are given at Appendix 1.

Table 2.
Item discrimination and difficulty indexes for Environmental Knowledge Test

Q	A	Pj	Rjx	Sj	T	P	Content of the Question
1	C	0.68	0.34	0.47	10.640	0.000	Energy Problems
2	B	0.45	0.29	0.50	10.130	0.000	Energy Resources
3	C	0.71	0.42	0.45	10.037	0.000	Environment Conventions
4	D	0.95	0.24	0.21	3.863	0.000	Water Issues
5	C	0.74	0.29	0.44	6.898	0.000	Energy Resources
6	A	0.64	0.28	0.48	9.671	0.000	Core Concepts about Environment
7	B	0.65	0.31	0.48	9.437	0.000	Core Concepts about Environment
8	A	0.65	0.38	0.48	11.200	0.000	Relationships between Species
9	C	0.36	0.26	0.48	9.306	0.000	Global Warming
10	D	0.82	0.25	0.38	6.071	0.000	Population Ecology
11	E	0.63	0.34	0.48	10.575	0.000	Habitats
12	B	0.60	0.30	0.49	10.837	0.000	Environmental Organizations

*Q: Question A: Answer N:345 Mod:9 Median:8 Mean:7.88 Std.Deviation:2.52 Cronbach's Alpha:0.67 Skewness: -0.471 Kurtosis: -0.327 Test Difficulty: % 65.66
(Pj: Item Difficulty Index Rjx: Item Discrimination Index Sj: Standard Deviation T: t-test value for high and low achieving groups , P: meaningfulness of t-test)

Process

Data collection tools were printed on paper and the preservice teachers filled the questionnaire and scales at the end of their courses. The permissions from administrations of the faculties and the instructors of the courses were taken. The participants were informed that they were free to give up filling the questionnaire and scales any time. Thus, voluntary participation of the preservice teachers was ensured.

Data Analysis

The raw data collected were examined through the outliers. Since, initial two research questions focused on differences between independent groups of people, they answered through independent

samples t-tests. Third research question dealt with relationships between variables and answered through correlational analysis. Although the data violated the tests of normality, the skewness and kurtosis values of distribution were not ranged exceeding the reasonable limits. Data analysed through both parametric and non-parametric methods and the results compared. The same results were obtained from two ways. Therefore, parametric solutions preferred over non-parametric ones.

Results

The results of the study are presented in line with the research questions respectively.

Preservice Teachers Knowledge of Environment

The average score of pre-service teachers was $X = 6.69$ ($SD = 1.91$). The total point that could be gained from the test was 12. Descriptive statistics in relation with PSTs' knowledge levels are presented in Table 3.

Table 3.

Descriptive Statistics

Program of Study	Level	N	X	SD
Science	Freshman	86	5.94	1.83
	Senior	80	8.05	1.71
	Total	166	6.95	2.06
Primary School	Freshman	81	7.33	1.37
	Senior	51	6.45	2.16
	Total	132	6.99	1.77
Pre-school	Freshman	88	6.11	1.85
	Senior	59	5.96	1.86
	Total	147	6.05	1.85
Social Sciences	Freshman	40	6.72	1.82
	Senior	36	6.88	1.46
	Total	76	6.80	1.65

The results of the analysis indicated that there were no significant differences between preservice teachers with respect to their levels ($t(519) = 2.88$, $p = 0.05$). Freshman PSTs' mean score from the knowledge test was 6.49 ($SD = 1.81$), while senior PSTs' mean score was 6.96 ($SD = 2.01$). There was a significant difference between the PSTs' with respect to their gender ($t(519) = 3.05$, $p < 0.05$) indicating that males had higher knowledge scores ($M = 7.59$, $SD = 1.82$) than females ($M = 6.53$, $SD = 1.92$). There were also differences between PSTs according to their programs of study ($F(3,519) = 7.97$, $p < 0.05$). Preschool preservice teachers had lower knowledge scores than all the other preservice teacher groups ($M = 6.05$, $SD = 1.85$).

Preservice Teachers' Self-Efficacy Regarding Environmental Education

The average score for PSTs' self-efficacy regarding environmental education was $M = 17.27$ ($SD = 4.06$) for academic competency dimension, $M = 9.93$ ($SD = 2.99$) for responsibility dimension, $M = 11.42$ ($SD = 2.00$) for teaching competency dimension and $M = 8.52$ ($SD = 2.36$) for guiding dimension (Maximum available scores are 30, 15, 15, and 15 for each dimension respectively).

Table 4.

Descriptive Statistics for PSTs' Self- Efficacy Beliefs Regarding Environmental Education

Program of Study	Level	Dimension	N	X	Sd
Science	Freshman	ACP	82	17.90	3.47
		RP	86	10.24	3.12
		TCP	86	11.44	1.99
		GP	85	9.29	2.37
	Senior	ACP	80	18.45	3.54
		RP	79	9.81	2.98
		TCP	80	11.21	1.58
		GP	79	10.07	2.03
	Toplam	ACP	162	18.17	3.50
		RP	165	10.03	3.06
		TCP	166	11.33	1.80
		GP	164	9.67	2.24
Primary School	Freshman	ACP	80	16.01	4.28
		RP	80	10.21	2.81
		TCP	80	11.20	2.24
		GP	81	8.96	2.57
	Senior	ACP	51	17.31	4.03
		RP	51	10.19	2.84
		TCP	50	11.60	1.95
		GP	51	9.92	2.17
	Toplam	ACP	131	16.52	4.22
		RP	131	10.20	2.81
		TCP	130	11.35	2.14
		GP	132	9.33	2.46
Preschool	Freshman	ACP	86	16.74	3.59
		RP	88	10.00	2.93
		TCP	88	11.70	2.15
		GP	86	9.55	2.22
	Senior	ACP	58	16.16	3.51
		RP	88	10.00	2.93
		TCP	59	11.00	1.91
		GP	59	9.30	2.26
	Toplam	ACP	144	16.51	3.56
		RP	147	9.60	2.95
		TCP	147	11.42	2.08
		GP	145	9.45	2.23
Social Sciences	Freshman	ACP	39	18.15	3.44

	RP	40	10.05	3.65
	TCP	40	12.27	1.85
	GP	40	9.62	2.58
Senior	ACP	35	17.29	4.25
	RP	36	9.75	2.78
	TCP	35	11.17	2.09
	GP	36	9.00	2.74
Toplam	ACP	74	17.74	3.84
	RP	76	9.90	3.25
	TCP	75	11.76	2.03
	GP	76	9.32	2.66

ACP: Academic Competency Perception RP:Responsibility Perception, TCP: Teaching Competency Perception, GP: Guidance Perception

There was no difference between the PSTs' self-efficacy with respect to their levels. There were significant differences between PSTs' self-efficacy beliefs with respect to their genders only on academic competency dimension ($t(509) = 4.39, p < 0.05$) indicating higher scores of males ($M = 18.52, SD = 3.98$) than females ($M = 16.78, SD = 3.00$). There were also significant differences between groups as means of their programs of study on the academic competency dimension of self-efficacy ($F(3, 507) = 5.56, p < 0.05$). Post-hoc tests indicated that PSTs at science teaching program ($M = 18.17, SD = 3.50$) had significantly higher academic competency perception than PSTs at primary school teaching program ($M = 16.74, SD = 5.03$) and PSTs at preschool teaching program ($M = 16.50, SD = 3.56$).

Relationship Between Knowledge of Environment and Self-efficacy Beliefs of Environmental Education

The analysis indicated that there were no significant relationships between preservice teachers' knowledge of environment and self-efficacy beliefs regarding environmental education. The results of analysis are given at Table 5.

Table 5.

Relationship between knowledge of environment and self-efficacy beliefs' dimensions

		ACP	RP	TCP	GP
Knowledge	Pearson Correlation	0.04	0.01	0.03	0.00
	Sig. (2-tailed)	0.27	0.80	0.93	0.93
	N	521	511	519	517

There were no significant relationships between knowledge and academic competency perception dimension ($r(519) = 0.04, p > 0.05$), knowledge and responsibility perception dimension

($r(509)= 0.01$, $p>0.05$), knowledge and teaching competency perception dimension ($r(517)= 0.03$, $p>0.05$), and knowledge and guidance perception dimension ($r(515)= 0.00$, $p>0.05$) of self-efficacy for preservice science teachers.

Discussion and Conclusion

The results of the study indicated that there were differences between PSTs' according to their gender and their programs of study both as means of their knowledge of environment and their self-efficacy beliefs regarding environmental education. Mean knowledge scores for preservice teachers ranged from 5.94- 8.05 (for total $X= 6.69$ ($SD= 1.91$)) for different programs. Preschool PSTs' knowledge scores ($M = 6.05$, $SD = 1.85$) were lower than the other PSTs. This may be explained by environmental courses and field courses that preservice teachers take. Similar results are found in the literature. In their study with college students studying in the biology department, Sadik and Çakan (2010) also found that the knowledge of students taking environmental knowledge courses was high. Preservice teachers' environmental knowledge did not show significant difference with respect to their level of training. This finding contradicts the general trend of increasing environmental knowledge as class level increases in other studies (O'brien, 2007; Öztürk, 2009; Sadik and Sarı, 2009; Yavetz et al., 2009). This result may be related to environmental education in training programs. Yucel and Morgil (1998) summarized the courses and topics about environment in Turkish higher education programmes and indicated the absence of a systematic approach in environmental education including more participatory, active, and thoughtful learning experiences. Later than that year, different teacher education programs were offered (Turkish Council of Higher Education, 2007; 2018). Currently, with 2018 programs including more selective courses covering environmental topics, still it is open to discussion if these programs can achieve the aim of developing qualified environmental educators in Turkey. In general, it is expected that teacher training programs should provide opportunities for development as means of environmental education. However, it should not be forgotten that the program alone cannot be problem solver about environmental education, the quality of the courses and out of classroom activities have an important role in developing qualified environmental educators. Another result from this study indicated that male PSTs' knowledge level was higher than female PSTs. This result is in congruence with some other results in the literature (O'brien, 2007). However, it is not possible to make an explanation about the source of this difference by the data obtained in this study. The origin of the issue should be a topic for further investigation in depth by qualitative methodologies.

In terms of self-efficacy beliefs, PSTs in preschool teaching programs had lower scores at academic competency dimension. This result is striking since these PSTs have an important role in environmental education of children at earlier ages. Erten (2005) suggested that environmental courses should be added to preschool teacher training programs. Average scores of PSTs' self-efficacy beliefs with respect to scale's dimensions were similar to those of Aydın (2008)'s study. The same scale was used in both of the studies with similar samples. PSTs' scores remained at an average level compared to the maximum score that can be obtained in the dimension of academic competence perception. In other dimensions, the scores received were above average. It is important to remember that academic competency perception is related to preservice teachers' perceptions of how they can manage about issues related to environmental content. The actual level of their academic competency can differ from their perceptions of competency. Pre-service teachers' content knowledge is a dimension of their academic competency. In the third research question, it was tried to find evidence for the relationship between knowledge and self-efficacy. Data collected in this study did not support that there was relationship between PSTs' self-efficacy beliefs regarding environmental education and their knowledge level of environmental issues. Similar results were found by Saribaş et al. (2014). According to this result it is possible to say PSTs' actual level of environmental knowledge do not seem to be related to their self-efficacy for environmental education.

Implications

Based on the results of this research, some suggestions may be as follows: The reasons for gender difference in knowledge level of elementary level preservice teachers should be further investigated with qualitative methodology in depth. In the university curriculum, environmental courses may be included in accordance with the level of students, aimed at developing knowledge and teaching skills of PSTs related to the environment. Quality issue should be always a matter of concern for the courses about environmental issues and education. The ideas of preservice teachers as means of bases to their self-efficacy beliefs can be investigated by qualitative methodology in depth for the reasons and sources. So that, finding ways to improve self-efficacy for environmental education could be possible. Similar research studies with different samples can be conducted, because we see that there are contradictory results in the literature as means of gender, level and program differences. Experimental studies can be carried out to improve PSTs' knowledge and the teaching skills of environmental issues. In preschool teacher training programs, we see that a course entitled Environmental Education at Early Childhood took place with the current reform (Turkish Council of Higher Education, 2018). The effectiveness of this course should be examined and tracked.

Environmental issues should take place in teacher training programs more prevalently both with in class and out of class implementations. Just increasing knowledge cannot be effective for increasing self-efficacy for preservice teachers. We need more systemic solutions for quality in environmental education area. In conclusion, more comprehensive and holistic approaches that aim to develop preservice teachers' skills and knowledge in relation with environmental education are needed in teacher training programs.

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Conflict of Interest

It has been reported by the authors that there is no conflict of interest.

Funding

This study was supported by Aydın Adnan Menderes University Scientific Research Projects Unit with the code EĞF-12006.

Ethical Standards

We have carried out the research within the framework of the Helsinki Declaration; the participants are volunteers and know that they can give up if they do not want to participate the research. The research does not include any harmful implementation or the researchers do not obtain any special or sensitive information from participants. Necessary permissions are taken from the relevant institution.

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Appendix 1: Sample Questions from the Environmental Knowledge Test

Q _N	Answer	Topic Covered	Question (Original in Turkish)
1	C	Energy Problems	<p>Dünya nüfusu 2005 yılı itibarıyla 6.5 milyar kişi olup günümüzde 7 milyara yaklaşmıştır. Dünya'da kullanılan enerjinin %85'i petrol başta olmak üzere kömür ve doğalgazdan karşılanmaktadır. Doğalgaz tüketimi dünya genelinde hızla artış göstermektedir. Jeotermal, güneş ve rüzgar gibi kaynakların tüm enerji üretimindeki payı %10 civarındadır. Bu bilgiler gö önüne alınarak aşağıdaki yorumlardan hangisi yapılamaz?</p> <p>A) Enerji üretiminin sağlandığı kaynakların çoğu tükenebilir kaynaklardır. B) Petrol, doğalgaz ve kömüre dayalı enerji tüketimi yapan ülkelerin enerji üretim maliyetleri gelecekte artış gösterebilir. C) Dünya genelinde güneş ve rüzgar gibi enerji kaynaklarına yönelim hızla artmaktadır. D) Enerji tüketiminde önemli değişiklikler olmadığı sürece küresel ısınma artabilir. E) Dünyadaki enerji tüketimi artmaktadır.</p> <p>Aşağıda bazı çevre kavramları verilmiştir:</p> <p>I-Sıralı Değişim (Süksesyon): Belli bir bölgedeki türlerin zaman içinde birbirlerini izleyerek ortaya çıkması II-Biyom: Sucul ekosistemlerde kullanılan en büyük tür topluluğu III-Biyolojik Çeşitlilik: Yaşamı oluşturan gen, tür ve ekosistem çeşitliliği IV-Endemik Tür: Belli bir yöreye özgü başka hiçbir yerde bulunmayan türler V-Popülsasyon: İyi bir şekilde birbirinden ayrılmış bitki ve hayvan toplulukları</p> <p>Bu tanımlardan hangileri doğrudur?</p> <p>A) II-III-IV B) I-III-IV C) I-II-IV D) II-IV-V E) I-V</p> <p>Dünya'daki biyoçeşitliliği korumak için çalışmalar yapar. Dünya çapında ve bölgesel düzeyde türlerin durumlarını belirlemek için bilimsel çalışmalara dayalı listeler yayınlar.</p>
7	B	Core Concepts About Environment	<p>Yukarıda açıklanan ve temel hedefi biyoçeşitliliği korumak olan çevre kuruluşu hangisidir?</p> <p>A) Doğal Hyatı Koruma Vakfı (WWF) B) Uluslararası Doğa Koruma Birliği (IUCN) C) Yeşil Barış Örgütü (Greenpeace) D) TEMA E) İktisadi Kalkınma ve İşbirliği Vakfı (OECD)</p>
12	B	Environmental Organizations	