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## The Determination on the Science Teaching Candidates' Awareness about the Recycling<sup>1</sup>

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### Abstract

It is possible with the people's consciousness and awareness on the recycling that the vital-importance of recycling becomes common for a healthier environment by being an act in a society. Thus, it has been aimed to determine the science students' awareness of the recycling of wastes in this research. The research sampling consists of 81 science students in total that they receive their education at the 1. grade in the Department of Science Teaching in the Faculty of Education in a state university located north part of Turkey. "The Awareness Scale on The Recycling", which was developed by Aksan and Çelikler (2017), has been used as a data collection tool in this research. When it is considered that 195.75 is mean of the scores which were obtained by the students from the scale in the study, it can be highlighted that the awareness about recycling of the students is high.

*Keywords:* Recycling, sustainable development, waste, awareness, science student

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## **Introduction**

The rapid increase in population and unplanned urbanization cause an increase in the solid waste, and the increased waste amount causes various important environmental problems which threaten the health of living creatures and the whole environment. Problems with the increased waste amount create emphasis on waste management policies, which focus on production and consumption with a minimum waste level. (BSTB, 2014). Disposals should be collected, transported, stored regularly, and made harmless by working on them. These wastes created by human activities result in many dangerous problems such as storage problem, surface and ground water pollution, reproduction of several pests, soil pollution, air pollution caused by gases coming from the wastes due to the mixture of wastes in the soil which causes carcinogenic materials (Keleş, 2007).

Environmental education plays a key role to solve these environmental problems damaging the entire world. In the modern world, environmental education appears to be a necessity which is an educational process raising environmental awareness by educating the aimed target group. Therefore, value, skill, and experience at an individual or common action point are needed to solve environmental problems (Indabawa & Mpofo, 2006).

It is needed to evaluate education with a related sense (ecological, economic and social) in all fields and implementation of it depends on sustainability principles for a sustainable development which targets to train individuals in the direction of an environmentally, socially and economically sustainable world (UNECE, 2003). Education, as a prerequisite for sustainable development, improves the ability of societies' making evaluations and selections in favor of sustainable development. Besides, it will create a change in the perspective of individuals for a healthier, safer world with a high level of welfare. Education for sustainable development ensures that individuals can reach the needed information, attitude and skills and take part in the decision-making processes and enhance

their standards of living without damaging the future of the world (Dawe, Jucker & Martin, 2005). Furthermore, training individuals for sustainable development may improve critical thinking ability, and increase awareness and authorization required to explore education, new vision and concepts and develop new methods and instruments (UNESCO, 2002).

Awareness is the effort of individuals to develop their abilities to learn how to know the relevant subjects and realize and solve the problems. An individual with awareness creates a new scheme on that subject in his mind. Besides, individuals with an increased level of awareness will regulate their reactions to the problems they faced (Çam & Engin, 2006).

Recycling plan becomes prominent to reduce waste amount seen as an important problem at present. For that reason, Reuse, Recovery, and Recycling known as 3R become crucial elements to reduce the waste amount, which creates essential issue. Recycling has an importance for a sustainable environment, and it may turn into an attitude and become widespread in societies through conscious and awareness which individuals raise concerning the recycling. Teachers play an important role in the formation of societies with high consciousness and recycling awareness.

When the studies which were carried out with teachers and teacher candidates about the wastes and recycling are examined; attitude, knowledge, sensitivity, mental model, awareness and recycling behaviors are seen as the focus of studies. Kışoğlu and Yıldırım (2015) examined the attitudes of science, elementary school and social sciences teacher candidates who will provide environmental education in elementary and secondary schools in the future towards solid wastes and recycling in terms of various variables. Karatekin and Merey (2015) conducted a study to determine the attitudes of social sciences teacher candidates towards solid waste and recycling. Çelikler, Yılmaz and Aksan (2015) determined the solid waste and recycling attitudes of science teacher candidates. Cici et al. (2005) determined teacher candidates' environmental awareness and knowledge level in the context

of solid waste pollution, while Aksan and Çelikler (2019) examined the effect of recycling awareness education on the knowledge levels of science teacher candidates. Cinquetti and Carvalho (2007) investigated aspects of elementary school teachers' content knowledge related to teaching and learning about solid waste. Aksakal (2013), in addition, examined the science and technology teacher candidates' sensitivity to environmental recycling according to their gender and their environment before going to university. Harman, Aksan and Çelikler (2015) determined the mental models of science students about recycling. While Karatekin (2014) determined the solid waste and recycling awareness of social sciences teacher candidates, Harman and Çelikler (2016) conducted a study to determine the awareness of science teacher candidates about recycling. In addition, it is seen that there are studies about the recycling behaviors of the teacher candidates (Tekkaya, Kılıç & Şahin, 2011; Pamuk & Kahrıman-Pamuk, 2019).

It is thought that it is important to determine the knowledge, attitudes and awareness of teachers and teacher candidates who will train future generations on recycling. Therefore, this research aims to determine the awareness of science students about the recycling of wastes. It is thought that the research will shed light on the researchers who make studies on the subject and will contribute to the literature.

### **Methodology**

Survey model was chosen to determine attitudes, actions, ideas and beliefs of the individuals and cross-sectional research design in which data is collected into a single and short period of time (Christensen, Johnson & Turner, 2015) have been used in the study. The research sample consists of 81 students who are studying at the 1st grade of Science Teaching Department, Faculty of Education at a State University in northern Turkey.

The Scale of Recycling Awareness developed by Aksan and Çelikler (2017) was used as data collection tool in the study. The used scale is composed of 10 factors including “Environmental” (9 items), “Educational” (5 items), “Economic” (5 items), “Administrative” (6 items), “Legal” (4 items), “Susceptibility” (5 items), “Media” (3 items), “Protection of resources” (4 items), “Features of recycled products” (4 items) and “Biological” (3 items), and the reliability value is 0.896. In addition, the lowest score is 48.00 on Recycling Awareness Scale while the highest score is 240.00. Data obtained by the study has been analyzed with a percentage (%) and frequency (f).

## Results

Table 1 demonstrates the percentage and frequency distributions for the answers given by Science students to the items involved in the “Environmental” factor of Recycling Awareness Scale.

Table 1

*Percentage and Frequency Distributions of the Answers given by Students to the Items in “Environmental” Factor of the Scale*

Items	CA		A		NAND		D		CD	
	f	%	f	%	f	%	f	%	f	%
Recycling reduces environmental pollution.	<b>56</b>	<b>69.1</b>	23	28.4	1	1.2	1	1.2	0	0
Recycling slows down global warming.	<b>40</b>	<b>49.4</b>	34	42.0	4	4.9	3	3.7	0	0
Recycling does not solve the problem of waste.	8	9.9	14	17.3	19	23.5	<b>30</b>	<b>37.0</b>	10	12.3
Recycling prevents bad odours.	31	38.3	<b>37</b>	<b>45.7</b>	8	9.9	3	3.7	2	2.5
Recycling does not change the greenhouse effect.	1	1.2	4	4.9	11	13.6	<b>47</b>	<b>58.0</b>	18	22.2

Recycling prevents visual pollution.	<b>48</b>	<b>59.3</b>	26	32.1	4	4.9	3	3.7	0	0
Recycling has no effect on soil pollution.	4	4.9	3	3.7	5	6.2	34	42.0	<b>35</b>	<b>43.2</b>
Recycling increases air pollution.	1	1.2	2	2.5	5	6.2	34	42.0	<b>39</b>	<b>48.1</b>
Recycling helps prevent water pollution.	<b>41</b>	<b>50.6</b>	35	43.2	1	1.2	3	3.7	1	1.2

(CA: Certainly Agree, A: Agree, NAND: Neither Agree Nor Disagree, D: Disagree, CD: Certainly Disagree)

By examining answers given by the students to the items in “Environmental” factor, it can be understood that while students certainly agree that recycling of wastes decreases environmental pollution (69.1%), lowers the global warming (49.4%), prevents visual pollution (59.3%) and water pollution (50.6%), they agree that it prevents formation of bad smells (45.7%). In addition, it has been determined that students disagree with the idea that garbage problem won’t be prevented (37.0%), it won’t create any change in the greenhouse effect, and they certainly disagree that soil pollution won’t decrease (43.2%) and air pollution will increase (48.1%).

Table 2 demonstrates the percentage and frequency distributions of the answers given by Science students to the items involved in the “Educational” factor of Recycling Awareness Scale.

Table 2

*Percentage and Frequency Distributions of the Answers given by Students to the Items in “Educational” Factor of the Scale*

Items	CA		A		NAND		D		CD	
	f	%	f	%	f	%	f	%	f	%
I am not very knowledgeable about recycling.	5	6.2	22	27.2	24	29.6	<b>26</b>	<b>32.1</b>	4	4.9
Awareness should be raised in society about recycling products.	<b>55</b>	<b>67.9</b>	24	29.6	2	2.5	0	0	0	0

Education provided in schools is important in developing recycling awareness.	<b>54</b>	<b>66.7</b>	27	33.3	0	0	0	0	0	0
Consumer awareness projects are important for developing recycling awareness.	<b>49</b>	<b>60.5</b>	32	39.5	0	0	0	0	0	0
Societies do not have the required level of information about recycling.	34	42.0	<b>36</b>	<b>44.4</b>	9	11.1	1	1.2	1	1.2

(CA: Certainly Agree, A: Agree, NAND: Neither Agree Nor Disagree, D: Disagree, CD: Certainly Disagree)

When the answers given by the students to the items in the “Educational” factor are examined, it is stated that while some students certainly agree that it is required to raise the public awareness about recycling products (67.9%), it is important to provide the required training at schools in order to raise recycling awareness (66.7%), it is important to conduct projects to raise awareness of consumers about recycling (60.5%), they agree that societies don’t have enough information about what recycling is (44.4%). Besides, it has been determined that students disagree that they don’t have sufficient knowledge of recycling (32.1%).

Table 3 demonstrates the percentage and frequency distributions of the answers given by Science students to the items involved in the “Economic” factor of Recycling Awareness Scale.

Table 3

*Percentage and Frequency Distributions of the Answers given by Students to the Items in “Economic” Factor of the Scale*

Items	CA		A		NAND		D		CD	
	f	%	f	%	f	%	f	%	f	%
Recycling saves energy.	39	48.1	33	40.7	8	9.9	0	0	1	1.2
Widespread recycling helps decrease imports of raw materials.	35	43.2	29	35.8	15	18.5	2	2.5	0	0
Products made of recycled materials contribute to economic development.	38	46.9	38	46.9	4	4.9	1	1.2	0	0
Recycling industry creates jobs for people.	33	40.7	31	38.3	14	17.3	3	3.7	0	0
Investing in recycling industry makes economic sense.	35	43.2	35	43.2	10	12.3	0	0	1	1.2

(CA: Certainly Agree, A: Agree, NAND: Neither Agree Nor Disagree, D: Disagree, CD: Certainly Disagree)

By examining answers given by the students to the items in “Economic” factor, it is stated that students certainly agree that energy can be saved by recycling (48.1%), increase in the amount of imported raw material from foreign countries as recycling becomes popular (43.2%), development of the recycling sector will provide people with new business opportunities (40.7%). Besides, it has been determined some students agree and some of them certainly agree that products made of recycled materials will contribute to the economy (46.9%) and that recycling sector is a productive economic investment (43.2%).

Table 4 demonstrates percentage and frequency distributions of the answers given by Science students to the items involved in the “Administrative” factor of Recycling Awareness Scale.

Table 4

*Percentage and Frequency Distributions of the Answers given by Students to the Items in “Administrative” Factor of the Scale*

Items	CA		A		NAND		D		CD	
	f	%	f	%	f	%	f	%	f	%
Recycling methods are the same for all types of waste.	3	3.7	4	4.9	21	25.9	<b>31</b>	<b>38.3</b>	22	27.2
Recycling requires more space for waste storage.	19	23.5	<b>37</b>	<b>45.7</b>	21	25.9	2	2.5	2	2.5
In recycling, wastes undergo physical changes only.	1	1.2	11	13.6	29	35.8	<b>30</b>	<b>37.0</b>	10	12.3
Recycling bins need to be used more widely.	<b>53</b>	<b>65.4</b>	26	32.1	2	2.5	0	0	0	0
Recycling is done by municipalities and licenced firms.	15	18.5	<b>33</b>	<b>40.7</b>	29	35.8	4	4.9	0	0
The most important stage of recycling is separation at source and separate collection.	34	42.0	<b>38</b>	<b>46.9</b>	6	7.4	2	2.5	1	1.2

(CA: Certainly Agree, A: Agree, NAND: Neither Agree Nor Disagree, D: Disagree, CD: Certainly Disagree)

By examining answers given by the students to the items in “Administrative” factor, it has determined that while students certainly agree that recycling bins should become popular (65.4%), some of them agree that more fields will be required for storage processes of the wastes through recycling (45.7%), recycling activities are executed by municipalities and licensed companies (40.7%), and the most important recycling phase is the separation at source and collection (46.9%). In addition, it has been determined some of the students disagree that recycling methods are same for every waste (38.3%) and wastes are only subjected to physical changes in recycling process (37.0%).

Table 5 demonstrates percentage and frequency distributions of the answers given by Science students to the items involved in the “Legal” factor of Recycling Awareness Scale.

Table 5

*Percentage and Frequency Distributions of the Answers given by Students to the Items in “Legal” Factor of the Scale*

Items	CA		A		NAND		D		CD	
	f	%	f	%	f	%	f	%	f	%
New legislation needs to be made to encourage recycling.	<b>39</b>	<b>48.1</b>	29	35.8	12	14.8	1	1.2	0	0
An environmental protection tax should be introduced to encourage recycling.	22	27.2	<b>25</b>	<b>30.9</b>	<b>25</b>	<b>30.9</b>	4	4.9	5	6.2
Recycling facilities do not need an environmental licence to operate.	7	8.6	8	9.9	19	23.5	<b>28</b>	<b>34.6</b>	19	23.5
Governments should sign international treaties and protocols to spread recycling.	<b>26</b>	<b>32.1</b>	25	30.9	25	30.9	2	2.5	3	3.7

*(CA: Certainly Agree, A: Agree, NAND: Neither Agree Nor Disagree, D: Disagree, CD: Certainly Disagree)*

By examining answers given by the students to the items in “Legal” factor, it has been determined that while some of the students certainly agree that government should make legal regulations to increase recycling activities (48.1%) and countries should make global agreements and protocols (32.1%), some students agree and some of them neither agree nor disagree that environmental protection tax should be levied (30.9%). In addition, it has been determined some of the students disagree that plants conducting recycling processes are not required to have environmental permit or license (34.6%).

Table 6 demonstrates percentage and frequency distributions of the answers given by Science students to the items involved in “Susceptibility” factor of Recycling Awareness Scale.

Table 6

*Percentage and Frequency Distributions of the Answers given by Students to the Items in “Susceptibility” Factor of the Scale*

Items	CA		A		NAND		D		CD	
	f	%	f	%	f	%	f	%	f	%
People do not care to separate their waste.	<b>37</b>	<b>45.7</b>	35	43.2	5	6.2	3	3.7	1	1.2
I take care to use recycling bins.	23	28.4	<b>36</b>	<b>44.4</b>	13	16.0	9	11.1	0	<b>0</b>
I prefer recyclable products when i am shopping.	18	22.2	18	22.2	<b>28</b>	<b>34.6</b>	15	18.5	2	2.5
People do not care to use recycling bins.	33	40.7	<b>36</b>	<b>44.4</b>	6	7.4	5	6.2	1	1.2
I separate my waste at home.	10	12.3	<b>28</b>	<b>34.6</b>	27	33.3	13	16.0	3	3.7

*(CA: Certainly Agree, A: Agree, NAND: Neither Agree Nor Disagree, D: Disagree, CD: Certainly Disagree)*

By examining answers given by the students to the items in “Susceptibility” factor, it has been determined that while some students certainly agree that people don’t care about distinguishing wastes and putting them into bins (45.7%) and some of them agree they care about putting the wastes into recycling bins (44.4%), people don’t care about use of recycling bins (44.4%) and people pay attention to separate wastes at home (34.6%). In addition, it has been determined some of the students neither agree nor disagree that they prefer to buy recyclable products (34.6%).

Table 7 demonstrates percentage and frequency distributions of the answers given by Science students to the items involved in the “Media” factor of Recycling Awareness Scale.

Table 7

*Percentage and Frequency Distributions of the Answers given by Students to the Items in “Media” Factor of the Scale*

Items	CA		A		NAND		D		CD	
	f	%	f	%	f	%	f	%	f	%
There should be public campaigns to raise awareness in society about recycling.	42	51.9	33	40.7	6	7.4	0	0	0	0
It is important to use the media to raise social awareness about recycling.	45	55.6	33	40.7	3	3.7	0	0	0	0
There should be news and other programmes in the media about waste and recycling.	42	51.9	33	40.7	6	7.4	0	0	0	0

*(CA: Certainly Agree, A: Agree, NAND: Neither Agree Nor Disagree, D: Disagree, CD: Certainly Disagree)*

By examining answers given by the students to the items in “Media” factor, it has been determined that some students certainly agree that public service advertisements should be prepared to increase recycling awareness in society (51.9%), it is important to use media to increase recycling awareness in society (55.6%), and it is required to make news and programs via media concerning wastes and recycling (51.9%).

Table 8 demonstrates percentage and frequency distributions of the answers given by Science students to the items involved in “Protection of resources” factor of Recycling Awareness Scale.

Table 8

*Percentage and Frequency Distributions of the Answers given by Students to the Items in “Protection of resources” Factor of the Scale*

Items	CA		A		NAND		D		CD	
	f	%	f	%	f	%	f	%	f	%
Recycling prevents wasting raw materials.	42	51.9	36	44.4	2	2.5	1	1.2	0	0
Recycling means efficient use of natural resources.	45	55.6	33	40.7	2	2.5	0	0	1	1.2
Recycling prevents depletion of mineral resources.	37	45.7	29	35.8	15	18.5	0	0	0	0
Recycling protects forests.	43	53.1	32	39.5	4	4.9	1	1.2	1	1.2

(CA: Certainly Agree, A: Agree, NAND: Neither Agree Nor Disagree, D: Disagree, CD: Certainly Disagree)

By examining answers given by the students to the items in “Protection of resources” factor, it has been determined that some students certainly agree that waste of raw material will be prevented by recycling (51.9%), natural resources will be used efficiently (55.6%), depletion of mineral deposits will be prevented (45.7%) and forests will be protected (53.1%).

Table 9 demonstrates percentage and frequency distributions of the answers given by Science students to the items involved in “Features of recycled products” factor of Recycling Awareness Scale.

Table 9

*Percentage and Frequency Distributions of the Answers given by Students to the Items in “Features of recycled products” Factor of the Scale*

Items	CA		A		NAND		D		CD	
	f	%	f	%	f	%	f	%	f	%
Products made of recycled materials are not high-quality.	3	3.7	3	3.7	30	37.0	35	43.2	10	12.3

Products made of recycled materials are not durable.	0	0	5	6.2	27	33.3	<b>38</b>	<b>46.9</b>	11	13.6
Products made of recycled materials are expensive.	7	8.6	3	3.7	23	28.4	<b>40</b>	<b>49.4</b>	8	9.9
Recycled goods are products made of recycled materials.	32	39.5	<b>46</b>	<b>56.8</b>	2	2.5	1	1.2	0	0

(CA: Certainly Agree, A: Agree, NAND: Neither Agree Nor Disagree, D: Disagree, CD: Certainly Disagree)

By examining answers of the students to the items in “Features of recycled products” factor, it has been determined that some students agree that products made by the recycled materials are to utilize wastes and make them new products with them (56.8%). It has also been determined that some of them disagree that products made of materials subjected to recycling are not of good quality (56.8%), they are not long-lasting (46.9%) and they are expensive (49.4%).

Table 10 demonstrates percentage and frequency distributions of the answers given by Science students to the items involved in the “Biological” factor of Recycling Awareness Scale.

Table 10

*Percentage and Frequency Distributions of the Answers given by Students to the Items in “Biological” Factor of the Scale*

Items	CA		A		NAND		D		CD	
	f	%	f	%	f	%	f	%	f	%
Recycling helps microorganisms proliferate.	5	6.2	5	6.2	<b>34</b>	<b>42.0</b>	28	34.6	9	11.1
Recycling protects life.	<b>43</b>	<b>53.1</b>	35	43.2	3	3.7	0	<b>0</b>	0	0
Using recycled products is not safe for health.	5	6.2	2	2.5	23	28.4	<b>32</b>	<b>39.5</b>	19	23.5

(CA: Certainly Agree, A: Agree, NAND: Neither Agree Nor Disagree, D: Disagree, CD: Certainly Disagree)

By examining answers given by the students to the items in the “Biological” factor, it has been determined that some students certainly agree that recycling will protect the lives of living creatures (53.1%). Also, it has been determined that some of the students neither agree nor disagree that microorganism will reproduce more by recycling (42.0%). Furthermore, it has been determined some of the students disagree the usage of recycled products are not safe for health (39.5%).

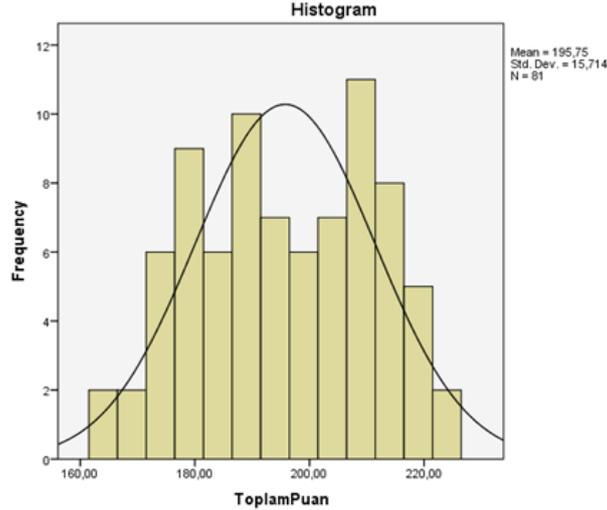
Table 11 demonstrates central tendency and distribution measures of total item scores of the students on Recycling Awareness Scale.

Table 11

*Central Tendency and Distribution Measures of Recycling Awareness Scale’s Factors and Total Item Scores*

Score Distributions	Central Tendency Measures				Central Distribution Measures			
	N	Mean	Median	Mod	Min	Max	Range	SS
Environmental	81	37.19	37.00	39.00	29.00	45.00	16.00	3.672
Educational	81	21.19	21.00	22.00	17.00	25.00	8.00	2.039
Economic	81	21.37	20.00	25.00	12.00	25.00	13.00	3.014
Administrative	81	23.72	24.00	26.00	16.00	30.00	14.00	2.469
Legal	81	15.38	15.00	15.00	7.00	20.00	13.00	2.709
Susceptibility	81	19.14	19.00	19.00	12.00	25.00	13.00	2.846
Media	81	13.40	14.00	15.00	10.00	15.00	5.00	1.595
Protection of resources	81	17.65	18.00	20.00	10.00	20.00	10.00	2.335
Features of recycled products	81	15.07	15.00	16.00	9.00	20.00	11.00	2.359
Biological	81	11.59	11.00	11.00	7.00	15.00	8.00	1.671
<b>Recycling Awareness Scale</b>	<b>81</b>	<b>195.75</b>	<b>196.00</b>	<b>208.00</b>	<b>164.00</b>	<b>226.00</b>	<b>62.00</b>	<b>15.71</b>

Graph 1 illustrates the histogram graphic illustrating total item scores of the students over Recycling Awareness Scale.



**Graph 1.** Distribution graphic of total item scores

By examining Table 11 and Graphic 1, it can be seen that the lowest score is 164.00 and the highest score is 226.00 on Recycling Awareness Scale, and the mean of the scores is 195.75. The standard deviation for the scored reached as 15.71.

### Conclusions

Given that the mean of the scores obtained by science students from Recycling Awareness Scale in the study is 195.75, so we can say awareness of the students is high for recycling. It is thought that individuals with high awareness of recycling will be more likely to show recycling behavior. Thus, Kışoğlu and Yıldırım (2015) state it is an expected result that individuals with high interest and susceptibility for recycling would show recycling behaviors.

While it has been determined in the study that students should have different fields of thinking will be necessary for storage processes of the wastes while recycling, it has also demonstrated that students have lack of information since they are doubtful if microorganisms reproduce more by recycling. It is a remarkable conclusion of the study that teacher candidates indicate materials of products subjected to recycling are quality, long-lasting and

cheap but they are doubtful if they prefer to buy these recyclable products. Besides, they have indicated that it is required to design awareness-raising projects for consumers about recycling and thus it is considered they have dilemmas on recycled products. In the direction of the research results, it is considered that it is important to carry out arrangements and studies to encourage production and consumption of these products through information and awareness-raising projects about environment-friendly products to make recycling popular. It is considered that institutions and organizations making executing activities for wastes and recycling should arrange social activities which attract attention and raise awareness of individuals. It is also considered that it is important especially at schools to inform students by distributing informative posters and brochures accompanied by specialist trainers of these institutions/organizations and to arrange activities, competitions and campaigns which will attract attention and raise awareness of students. Hence, Mostafa (2007) states in his study that being a member of environmental clubs and attending environmental activities would help individuals to increase their attention to the environment.

It is seen that teacher candidates stated that society should be informed on recycling, and media is important in terms of raising recycling awareness. In this context, media is considered an important tool to reach the large masses and affecting the masses, and it is required to broadcast in order to attract attention to environmental issues, raise awareness in society and inform people. Thus, Brevik (1988) indicates societies of which environmental susceptibility has increased by the impact of media will likely make an effort to protect the environment. Kaushik (2006) states that love of nature may be easily instilled especially in children and their awareness and susceptibility to the environment may be developed through educational programs conducted by media that can reach people of all ages. Similarly, Ural-Keleş and Keleş (2018) state that interesting programs to be published in the media can

improve students' perceptions by remedying the deficiencies about the effects of recycling on environmental pollution, the national economy and future.

Given that societies consisting of individuals with low environmental awareness are the main reason of environmental problems, it is seen that role of teachers has critical importance since they are one of the most important elements of environmental education and education system. If and only if a qualified environmental education and also teachers who are well-informed and have high a level of environmental awareness can create societies which have environmental awareness and adopt this conscious as a life style, find a solution for the problems through rationalist and environmental susceptibility and also a sense of sustainability and which take an effective part in solving environmental problems. Hence, Beckford (2008) also states that deficiencies of teacher candidates in environmental education are a vital obstacle to solve environmental problems. In this context, environmental education which teacher candidates will get during the university education which will guide them in their careers to raise the environmental awareness of students. For that reason, contents and quantity of the lessons consisting of environmental issues should be enhanced in the undergraduate curriculum and it is also required to inform and raise the awareness of teacher candidates by means of various educational activities.

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