

ATTITUDES OF PRESERVICE SOCIAL STUDIES TEACHERS TOWARDS SOLID WASTES AND RECYCLE¹

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Abstract

The objective of this study is to determine the attitudes of preservice social studies-teachers towards solid wastes and recycle. This study used the screening model, In order to determine the attitudes of preservice teachers towards solid wastes and recycle, we used the “Scale for the Attitudes of Preservice Teachers towards Solid Wastes and Recycle”, which was developed by Karatekin (2013). The study group of the study consists of 860 preservice teachers receiving education in the department of social studies teaching in 5 different cities of Turkey. As a result of the study, it has been determined that preservice social studies teachers have positive attitudes towards solid wastes and recycle in general. It is seen that preservice teachers have a higher total attitude score average in the dimensions of “belief” and “concern and sensitivity”, whereas they have a lower total attitude score average in the dimension of “intervention and participation” in the scale. While the attitudes of participants towards solid wastes and recycle show a significant difference according to the variables of gender and level of income; they do not show a significant difference according to the variable of class level.

Keywords: *Solid waste, recycle, preservice social studies teacher, attitude.*

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ÖZET

Bu araştırmanın amacı sosyal bilgiler öğretmen adaylarının katı atık ve geri dönüşüme yönelik tutumlarını tespit etmektir. Bu çalışmada tarama modeli kullanılmıştır. Öğretmen adaylarının katı atık ve geri dönüşüme yönelik tutumlarını belirlemek amacıyla Karatekin (2013) tarafından geliştirilen “ Öğretmen Adayları İçin Katı Atık ve Geri Dönüşüme Yönelik Tutum Ölçeği” kullanılmıştır. Araştırmanın çalışma grubunu Türkiye'nin 5 farklı ilinde sosyal bilgiler öğretmenliği anabilim dalında okuyan 860 öğretmen adayı oluşturmaktadır. Araştırmanın sonucunda sosyal bilgiler öğretmen adaylarının katı atık ve geri dönüşüm konusunda genel olarak olumlu tutumlara sahip oldukları görülmektedir. Öğretmen adaylarının ölçeğin “inanç” ve “ilgi ve duyarlılık” boyutlarından aldıkları toplam tutum puanlarının ortalamasının yüksek olduğu ancak “girişim ve katılım” boyutundan aldıkları toplam tutum puanlarının ortalamasının düşük olduğu görülmektedir. Katılımcıların katı atık ve geri dönüşüm konusunda sahip oldukları tutumlar cinsiyet ve gelir düzeyi değişkenine göre anlamlı bir farklılık gösterirken; sınıf düzeyi değişkenine göre anlamlı bir farklılık göstermemektedir.

Anahtar Kelimeler: Katı atık, geri dönüşüm, sosyal bilgiler öğretmen adayı, tutum.

1. Introduction

The relationship between human beings and the environment has rapidly started to develop against the environment in our century. Primary reason of this situation is that individuals forget that they are a part of the natural environment and mistakenly believe that the world just belongs to human beings (Çepel, 1992). Even though there are some attempts in our country and in the world to slow down this situation, they unfortunately fail to be effective. For instance, even though the World's First Climate Conference was held in Geneva in 1979 to prevent the global warming and the carbon release, there is an ever-increasing amount of carbon dioxide in the atmosphere. Primary reason of this condition is the failure of approaching the solution to environmental problems with the principle of totality, which is among the most important principles of ecology. If we keep accepting the natural environment as an indispensable condition for economy, which is only among the necessary activities of human beings, the environmental problems will increasingly continue. However, if we act by thinking that economic activities would determine the future of the natural environment (Keleş, Metin and Sancak, 2005), we will realize a decreased pressure of human beings on the environment. Unfortunately, we apparently see that the economic system in the world is a consumption-based production (economy) model that encourages the wild consumption rather than considering the future of the natural environment. One of the important environmental problems caused by this economy model is the solid waste problem. Solid waste is defined as solid matters and refined mud to be thrown off by those who generate them and be regularly removed for the peace of public and the environmental protection (TÇV, 2003). The changes caused by the rapid population growth in consumption patterns cause a rapid and constant increase of the solid waste amount per person, which results in the development of important environmental problems during the collection, transportation and storage of solid wastes (Ertürk, 1994). Types of solid wastes have rapidly increased in parallel with the development of science and technology, as well as the diversification of human needs and activities. As well as the agents left by human beings in the environment, there are new compounds and nuclear wastes that have been explored together with the development of the organic chemistry today (Akman et al., 2004). Today where there are such diversified types of solid wastes, there has been a gradual increase in the environmental problems caused by these wastes and their negative effects on human health. Considering the fact that the annual amount of solid wastes is approximately 26 million tons in our country and more than 1 billion tons in the world (URL 1), we will understand the significance of the solid waste problem for human beings and our environment better. Primary reason of the solid waste problem is the unconscious and rough use of natural resources. Such use of natural resources causes not only the solid waste problem,

but also other environmental problems. Thus, the efforts to be made by individuals to solve the solid waste problem will actually solve other environmental problems, as well. For instance, when individuals cause the decrease of production by changing their consumption patterns, this will lead to the decreased use of natural resources that are required for production, which will result in the minimization of all environmental problems (extinction of natural resources, soil pollution, water pollution, air pollution, global warming, thinning of the ozone layer, solid waste problem), which develop as a result of subtracting and processing the natural resources, turning them into a finished product, transporting, using them and finally leaving them in the natural environment as a waste. However, the present condition is exactly opposite. Consumption patterns of individuals are determined by the capitalist economy. What makes the situation even more dramatic is that people are not aware of it. They suppose that the goods to be consumed are bought with their own decision. However, the products being released are attributed symbolic meanings to create a desire of buying in consumers and besides, individuals are made have needs for those products with the help of various tricks of the capitalist economy (such as provoking through fashion, using the attraction of brand newness, systematic discrediting, rapid outwear of consumer goods), which results in a dead-end for people (Simonnet, 1990). Since this ambition of consumption started to be followed by the rapid increase of the world population in 1950, our planet has lost its power. The report published by the Rome Club in 1972 had already declared this truth to the entire world. According to the report; it is indicated that the worldly system has an economic and demographic border and in case that this border is crossed, the system will collapse. The report also shows that the primary factors causing the collapse of the system include the population growth, scarcity of resources, pollution and the highness of the technological level (Beck, 1990). As a matter of fact, a number of scientists, intellectuals and environmentalists indicate that the worldly system has collapsed today. For instance, the Society for the Protection of Nature has notified that this year (2013), the natural resources presented by our planet to mankind will have been consumed and the life will be sustained by borrowing from the next year for the rest of the year (Habertürk, 2013). Similarly, being one of our precious academicians, Çepel (2006) has stated that there will not be a limitless economic development in a limited world, the world has reached this limit and thus, we need to stop the economic development.

Extremely negative and challenging developments have occurred in terms of the environment in the period starting from the Rome Club until today. This process has not only brought along the rapid consumption of life sources on earth in such a way to prove the motto, “mankind is primarily required to experience a problem to have an awareness”, but also enabled the concern about the fact that the natural and cultural values being consumed are actually the future of mankind to cause intellectual and political effects on mankind (Ekinci, 1994). Primary effect of this situation is the necessity for changing

the attitudes and behaviors of human beings towards the nature, as is documented at the Stockholm conference (Yavuz and Keleş, 1983). On the other hand, the solid waste problem will be solved through changing our old attitudes and behaviors. It is primarily required to change the consumption patterns of modern man that are expressed by Güney (2004) as waste builders. Unless the attitudes and behaviors of modern man towards consumption change, there will never be a decrease in the amount of solid wastes being generated. Kışlalıoğlu and Berkes (2010) emphasize that while the disposable economy contradicts with ecological cycles, the traditional attitudes are more compatible with natural cycles and while doing so, they compare the Anatolian people who keep the water using pots and the modern people who use the water sold in plastic bottles. We should remember that the decrease of solid wastes will also provide savings for the labor force, energy and money to be spent in an attempt to remove these wastes. Even though we could decrease the amount of solid wastes by changing our consumption behaviors, it is not possible to completely remove them. Developed countries have established the system of solid waste management in order to minimize the solid waste problem. While the first phase of this management system comprises the process of decreasing at the source, the final phase comprises the process of removing (combusting and storing). In the solid waste management, the methods of minimizing the solid waste problem include composting, recovering and recycling. Another method of evaluating the solid wastes is the reuse. This method includes the process of reusing the solid wastes that are thrown due to being unnecessary in order to meet the needs of other people. As a consequence, a solid waste should not be exposed to the phases of combusting and regular storing before the phases of reusing, composting, recovering and recycling. Individuals have important duties and responsibilities especially in decreasing the waste production, decomposing the wastes at the source and sending them for recycling. For instance, citizens are required to help the local authorities in decomposing the wastes and throw the wastes in relevant areas by decomposing them. It primarily depends on having positive environmental attitudes for individuals to display responsible behaviors towards the environment. Since individuals learn/acquire the attitudes afterwards, it is required to bring positive environmental behaviors in children as from younger ages (Karatekin, 2013b). Thus, an efficient environmental education to be provided for our children at younger ages may enable them to have positive attitudes towards the environment. However, in order to do this, it is primarily required to enable the relevant trainers and preservice teachers to have positive environmental attitudes. Reviewing the literature, we have encountered with no study directly measuring the attitudes of preservice teachers towards solid wastes and recycle. We have only encountered with a limited number of studies measuring the knowledge and awareness of preservice teachers. For instance, in his study, Karatekin (2013a) concluded that preservice social studies teachers had lower levels of awareness regarding solid wastes and recycle. Cici et al. (2005) concluded

that preservice teachers had moderate levels of environmental awareness in terms of organic wastes and packaging and good levels in terms of recycle and waste decrease. Similarly, it is observed in the same study that preservice teachers have insufficient levels of knowledge regarding the solid waste pollution. In their study, Tekkaya, Kılıç and Şahin (2011) also concluded that positive attitudes strengthened the intentions about recycle behaviors. Social studies lesson is the primary lesson that enables an efficient environmental education at the level of primary and secondary education. Because the fundamental mission of this lesson is to raise good individuals, as well as efficient and active citizens. Thus, there is a need for such individuals for the solution of current world problems in general and environmental problems and solid waste problems in particular. Determining the attitudes of preservice social studies teachers, who will play an important role in raising such individuals, towards solid wastes and recycle is important in terms of revealing the present condition regarding this issue. As a matter of fact, the objective of this study is to determine the attitudes of preservice social studies teachers towards solid wastes and recycle.

2. Method

This part involves the study model, study group, data collection tools and the data analysis.

2.1. Research Model

This study used the screening model, which is among the quantitative study approaches.

2.2. Study Group

The study group of the study consists of 860 preservice teachers receiving education in the department of social studies teaching in 5 different universities providing education in various regions of Turkey. The following table shows the descriptive features of the study group:

Table 1. *Distribution of the study group according to universities, class levels and gender*

Department	n	%	Grade	n	%	Gender	n	%
Gazi University	248	28,8	1 th	225	26,2	Female	451	52,4
Karadeniz Technical University	214	24,9	2 th	217	25,2	Male	409	47,6
Yüzüncü Yıl University	206	24,0	3 th	225	26,2			
Ahi Evran University	83	9,7	4 th	193	22,4			
Uşak University	109	12,6						
Total	860							

In this study that used the maximum variety sampling method, the study group consisted of students with different genders and different class levels receiving education at universities in regions with different socio-economic features. That was done so in an attempt to generalize the study results to entire Turkey, describe the problem in a broader framework and obtain important and strong clues about the population values (Büyüköztürk et al.; 2009).

2.3. Data Collection Tool

In order to determine the attitudes of preservice teachers towards solid wastes and recycle, we used the “Scale for the Attitudes of Preservice Teachers towards Solid Wastes and Recycle”, which was developed by Karatekin (2013b). The scale consists of 33 questions and 3 dimensions. While the dimension of “intervention and participation” consists of 14 items, the dimension of “belief” consists of 8 items and the dimension of “concern and sensitivity” consists of 11 items. Calculated Cronbach’s alpha reliability coefficients to determine the reliability of the scale are .882 for the first factor, .882 for the second factor and .877 for the third factor. The Cronbach’s Alpha reliability coefficient of these three dimensions is above 0,70 (Karatekin, 2013b).

2.4. Data Analysis

The likert-type items in the data collection tool are ranged from “strongly agree” to “strongly disagree” and are scored from 1 to 5 according to this range. The value ranges are as follows: “1.00 – 1.79 = strongly disagree”, “1.80 - 2.59 = disagree”, “2.60 – 3.39 = undecided”, “3.40 – 4.19 = agree”, “4.20 – 5.00 = strongly agree”. In order to determine whether the total scores and lower dimensions showed a difference according to independent variables or not, we used the multiple variance analysis (manova), and in order to determine the rates given to each item, we used the percentage (%) calculations.

3. Findings

Table 2. *Results of the multiple variance analysis (manova) regarding the scale for the attitudes towards solid wastes and recycle according to some variables*

Independent Variables	Dimensions	KT	Sd	KO	F	P
Gender	Intervention and Participation	529,894	1	529,894	8,610	,004
	Belief	37,600	1	37,600	2,428	,120
	Concern and Sensitivity	112,538	1	112,538	4,555	,033
	Total	1580,834	1	1580,834	8,949	,003

Independent Variables	Dimensions	KT	Sd	KO	F	P
Class level	Intervention and Participation	225,442	3	75,147	1,221	,302
	Belief	17,605	3	5,868	,379	,768
	Concern and Sensitivity	14,474	3	4,825	,195	,900
	Total	438,102	3	146,034	,827	,480
Income	Intervention and Participation	732,332	4	183,083	2,975	,019
	Belief	81,836	4	20,459	1,321	,262
	Concern and Sensitivity	44,139	4	11,035	,447	,775
	Total	1704,437	4	426,109	2,412	,049

As is seen in Table 2, in consequence of the MANOVA analysis that was performed via the total scores obtained from the scale for the attitudes towards solid wastes and recycle and its dimensions, a statistically significant difference was determined in the dimensions of “intervention and participation” ($F=8,610$, $p<.05$), “concern and sensitivity” ($F=4,555$, $p<.05$) and in the entire scale for the attitudes towards solid wastes and recycle ($F=8,949$, $p<.05$) in favor of female preservice teachers according to the variable of gender. This finding may signify that female preservice teachers have more positive attitudes regarding solid wastes and recycle compared to male preservice teachers, and they have higher levels of concern and sensitivity. On the other hand, no significant difference was determined in the dimension of belief ($F=2,428$, $p>.05$) in terms of gender. No significant difference was determined in the dimensions of intervention and participation ($F=1,221$, $p>.05$), belief ($F=,379$, $p>.05$), concern and sensitivity ($F=,195$, $p>.05$) and the total score of attitude ($F=,827$, $p>.05$) according to the class level. This finding may signify that the environmental education received by preservice social studies teachers at the university has no effect upon their attitudes towards solid wastes and recycle. While a significant difference was observed in the dimension of “intervention and participation” ($F=2,975$, $p<.05$) and in the entire attitude scale ($F=2,412$, $p<.05$) in favor of preservice teachers with a lower monthly income according to the monthly income levels of preservice teachers, no significant difference was observed in other dimensions. As the level of income increases, the average of total attitude scores decreases. This finding may signify that preservice social studies teachers with a higher level of income have weaker attitudes towards solid wastes and recycle compared to preservice social studies teachers with a lower level of income.

Table 3. Descriptive data about the scale for the attitudes towards solid wastes and recycle and its dimensions

Dimensions	\bar{x}	Ss
Intervention and Participation	3,38	,5725
Belief	3,78	,5153
Concern and Sensitivity	3,71	,4505
Attitude Total	3,58	,4141

The scale for the attitudes towards solid wastes and recycle consists of 3 dimensions. While the average of the total scores obtained by participants from the dimension of “belief” is ($\bar{x}=3,78$); the average of the total scores obtained from the dimension of “concern and sensitivity” is ($\bar{x}=3,71$). These average scores coincide with the statement of “agree”. Thus, it could be asserted that the participants have high levels of belief, concern and sensitivity regarding solid wastes and recycle. In the dimension of “intervention and participation”, on the other hand, the average of total scores obtained by participants is ($\bar{x}=3,38$). The average of total scores in this dimension coincides with the statement of “undecided”. This finding may signify that preservice social studies teachers have weaker positive attitudes towards solid wastes and recycle in the dimension of intervention and participation. On the other hand, the average of total scores obtained by participants from the entire scale is ($\bar{x}=3,58$). This score coincides with the statement of “agree”. This finding may signify that preservice social studies teachers have stronger positive attitudes towards solid wastes and recycle.

Table 4. Descriptive analysis of responses given by participants to the items in the dimension of intervention and participation

		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	
INTERVENTION and PARTICIPATION		%	%	%	%	%	x
3	When I face the solid waste problem, I make interventions for the solution.	5	13	27	44	11	3,43
11	I warn those who use papers without a reason.	5	15	21	45	14	3,47
16	I think that it is difficult to decompose the solid wastes at home.	14	23	23	28	11	3,00
18	I prepare a requirement list before going shopping.	9	12	14	41	24	3,60

		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	
	INTERVENTION and PARTICIPATION	%	%	%	%	%	x
19	I warn those who do not throw the wastes into recycle bins.	7	16	27	39	12	3,33
20	I do not decompose the waste materials for recycling at home.	15	30	18	28	9	2,84
21	I convince my family for the recycle of wastes being generated at home.	7	16	24	42	10	3,33
22	I encourage my friends to contribute to recycling.	6	13	19	48	14	3,52
24	If there is no recycle bins in my neighborhood, I apply to relevant offices.	10	24	34	25	6	2,93
26	I would like to be included in studies aimed at raising the recycle awareness.	5	9	19	46	21	3,69
27	I voluntarily participate in the solid waste collection activities of non-governmental organizations.	7	13	27	37	15	3,41
29	I voluntarily participate in environmental cleaning activities.	6	10	22	42	19	3,57
30	I avoid buying products that are packaged unnecessarily.	11	20	35	25	9	3,01
33	It is important for me to know the legal regulations regarding solid wastes and recycle.	4	4	17	48	27	3,91

The responses given by preservice social studies teachers to the items in the dimension of “*intervention and participation*” are as follows; “When I face the solid waste problem, I make interventions for the solution” (55%), “I warn those who use papers without a reason” (59%), “I prepare a requirement list before going shopping” (65%), “I encourage my friends to contribute to recycling” (62%), “I would like to be included in studies aimed at raising the recycle awareness” (67%), “I voluntarily participate in the solid waste collection activities of non-governmental organizations” (52%), “I voluntarily participate in environmental cleaning activities” (61%), “It is important for me to know the legal regulations regarding solid wastes and recycle” (75%), “I think it is difficult to decompose solid wastes at home” (39 %), “I do not decompose the waste materials” (37 %) and “I do not apply to relevant offices for recycle bins” (34%). A large part of participants were undecided about majority of items in the lower dimension of “*intervention and participation*”, which was considered meaningful. This finding may signify that a part of participants have uncertain attitudes in the dimension of “*intervention and participation*”.

Table 5 . Descriptive analysis of responses given by participants to the items in the dimension of belief

		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	x
		%	%	%	%	%	
BELIEF		%	%	%	%	%	
1	It is not possible to reduce the amount of solid wastes today.	32	36	13	12	7	3,74
5	I do not believe that the recycle of solid wastes will contribute to the national economy.	62	20	5	5	8	4,23
7	It makes me anxious to think about the possibility that next generations will not be able to use natural resources.	5	7	10	45	33	3,95
10	I think that solid wastes could only be recycled through regulations.	13	22	25	25	15	2,93
12	Even if they cause the increase of taxes, I support the investments that are made for recycling.	3	6	14	51	26	3,91
13	Recycle of solid wastes will decrease the pressure on natural resources.	3	4	9	41	43	4,18
15	I think that recycled products will negatively affect the human health.	19	25	29	16	11	3,23
28	Trainingsto be provided at schools may increase the participation of individuals in recycling activities.	4	5	10	42	39	4,09

According to Table 5, it is observed that participants have high levels of belief regarding solid wastes and recycle. Their statements are as follows; “I think it is possible to reduce the amount of solid wastes” (68%), “I believe that the recycle will contribute to the national economy” (82%), “It makes me anxious to think about the possibility that next generations will not be able to use natural resources” (78%), “Even if they cause the increase of taxes, I support the investments that are made for recycling” (77%), “Recycle of solid wastes will decrease the pressure on natural resources” (84%), “Trainings to be provided at schools may increase the participation of individuals in recycling activities” (81%), “I think that solid wastes could only be recycled through regulations” (40%) and “I think that recycled products will negatively affect the human health” (27%).

Table 6. Descriptive analysis of responses given by participants to the items in the dimension of concern and sensitivity

		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	
CONCERN AND SENSITIVITY		%	%	%	%	%	x
2	I am well aware of the environmental problems caused by solid wastes.	2	3	3	50	42	4,26
4	I do not consider the next generations while consuming.	48	28	11	8	4	4,07
6	The government is responsible for the solution of the solid waste problem.	14	30	16	23	18	3,01
8	I do not think that solid wastes pose a problem for our country.	60	25	6	5	3	4,34
9	Even though there are recycle bins in my neighborhood, I do not decompose the wastes and throw them into those bins.	54	26	9	6	4	4,19
14	I am well aware of the damages caused by waste batteries in the environment.	3	4	7	40	46	4,22
17	I would not like to buy a recycled product.	19	34	29	12	6	2,52
23	It makes me upset not to evaluate the solid wastes in recycling.	6	7	13	51	23	3,78
25	I think that I do not have sufficient sensitivity about recycling.	10	23	20	36	12	2,82
31	Only the wastes in my own neighborhood bother me.	46	29	11	10	5	3,96
32	I am not interested in the method of removing the solid wastes that is applied in my city.	30	29	22	14	5	3,63

According to Table 6, the statements of participants are as follows; “I am well aware of the environmental problems caused by solid wastes” (92), “I consider the next generations while consuming” (76%), “I think that solid wastes pose a problem for our country” (85%), “I decompose the wastes and throw them into recycle bins” (80%), “I am well aware of damages caused by waste batteries in the environment” (86%), “It makes me upset not to evaluate the solid wastes in recycling” (74%), “The government is responsible for the solution of the solid waste problem” (41%), “I think that I do not have sufficient sensitivity about recycling” (48%), “I am undecided about paying attention to buying a recycled product” (29%) and “I am undecided about paying attention to the methods of removing the solid wastes that are applied in my city” (22%).

4. Conclusion And Discussion

As a result of the study, the female preservice teachers were observed to have more positive attitudes towards solid wastes and recycle, compared to male preservice teachers. In other words, it could be asserted that female preservice teachers are more concerned and sensitive about solid wastes and recycle compared to male preservice teachers and more eager to make an intervention and participation in the solution of the solid waste problem and recycle. Another result of the study is that as the class level increases, the attitudes of preservice teachers towards solid wastes and recycle remain the same. This result shows a parallelism with the results of studies that were conducted by Şama (2003), Yavetz, Goldman and Pe'er (2009); Timur (2011) and Karatekin (2011) regarding the general environmental attitudes. According to Mcbeth and Volk (2010), we should not expect the environmental attitudes to get stronger in parallel with the advanced age. Leeming et al. (1995) stated that changes in attitudes were related with special experiences rather than the advanced age. As the age of individuals advances, their attitudes become more settled and it gets more difficult to change them. However, the lessons taken by preservice social studies teachers for 4 years, as well as the books they read, the scientific activities they participate in, the activities they perform in student groups and the social environment they interact with have no effect upon their attitudes towards solid wastes and recycle, which makes it necessary to question the education being provided at universities and the environmental education in particular with a critical viewpoint. One of the stunning results of the study is that preservice social studies teachers with a higher level of family income (3500 TL and above) have weaker attitudes towards solid wastes and recycle, compared to preservice social studies teachers with a lower level of income. It is observed that particularly the preservice teachers with a higher level of family income are less eager to display an intervention and participation regarding the solution of the solid waste problem and the recycle, compared to preservice teachers with a lower level of income. There is a linear relationship between the development of industry and the increase of welfare level and the solid waste problem. In modern industrial societies, the basic reason of the solid waste problem is the increase of consumption. Consumption increases in parallel with the increase of the income level of the household. According to a study that was conducted by the Turkish Statistical Institute (TÜİK) in 2012, it is seen that groups with the highest income have a higher consumption expenditure in terms of the household consumption expenditure according to income (TÜİK, 2013). Thus, families with a higher level of income produce more solid wastes. Families with a higher level of income do not want make concessions to their consumption patterns and life standards, which may be effective upon their attitudes towards the solution of the solid waste problem.

Preservice social studies teachers are observed to have positive attitudes towards solid wastes and recycle in general. Especially the total attitude

score averages obtained by participants from the dimensions of “belief” and “concern and sensitivity” are observed to be higher. On the other hand, the total attitude score averages obtained by participants from the dimension of “intervention and participation” are remarkably lower than other dimensions. This result shows that participants have a difficulty in transforming their affective tendencies regarding solid wastes and recycle into behaviors. In this study, the fact that the participants think that it is difficult to decompose especially the solid wastes at home, they are reluctant to warn those who do not throw wastes into recycle bins, they do not decompose wastes at home and convince their families about this issue, they do not apply to relevant offices if there is no recycle bins in the neighborhood or they buy products that are packaged unnecessarily shows that they fail to transform their positive environmental attitudes into responsible environmental behaviors. In his study that was conducted with 500 households in Kampala, the capital of Uganda, Banga (2011) concluded that even though the participants were aware of the applications of decomposing the solid wastes and recycling, they did not attend such interventions much. In their studies, Demirbağ and Güngörmüş (2012), Aracıoğlu and Tatlıdil (2009) also concluded that the participants were aware of the importance of decomposing the domestic wastes and the process of recycling in protecting the environment and preventing the environmental pollution, but only a few participants decomposed the wastes before throwing them, which could be evaluated as its reflection on behaviors. In a number of studies being conducted in the field of environmental education, it is seen that individuals have positive environmental attitudes, but they are not able to sufficiently transform these positive attitudes into practices, actions and responsible environmental behaviors (Gigliotti, 1994; Kuhlemeier et al., 1999; Kibert, 2000; Owens, 2000; Pe’er, Goldman and Yavetz, 2007; Puruçuoğlu, 2008; Kaya, Akıllı and Sezek, 2009; Ürey and Şahin, 2010; Esa, 2010; Timur, 2011; Karatekin, 2011). In contrast with the results of this study, Thanh, Matsui and Fujiwara (2012) conducted a study with 100 households and concluded that individuals with good attitudes towards the waste management were more active in the recycle of wastes. Similarly, Tekkaya, Kılıç and Şahin (2011) concluded that positive attitudes strengthened the intentions aimed at recycle behaviors. However, even though the attitudes are effective upon behaviors, they may not always lead us to behaviors. Because ambient factors may affect our previous attitudes towards any object, case and event. Thus, attitudes constitute the behavior in interaction with ambient factors (Kağıtçıbaşı, 2010). For example, an individual that has a positive attitude towards the recycle of solid wastes and thus sends the wastes off to be recycled may not display the required behavior if the recycle bin is too far. The accessibility to the recycle bin given in this example may be effective upon the behaviors of the individual towards the process of recycling as an ambient factor.

It is seen that preservice teachers have positive attitudes towards solid wastes and recycle in the dimensions of “belief” and “concern and sensi-

vity”. However, a considerable number of preservice teachers were undecided about these dimensions and a part of them thought that the recycle of solid wastes could only be provided through regulations and the recycled products could negatively affect the human health, and they also considered the government the only way of solving the solid waste problem and refused to buy recycled products, which all caused the decrease of total attitude scores of preservice teachers in these dimensions. The 56. item of the Turkish Constitution emphasizes that “the government and citizens are liable to develop the environment, protect the environmental health and prevent the environmental pollution”, which clearly signifies that the solution of all environmental problems in general and the environmental problems caused by solid wastes in particular is not the responsibility of only the government. Unless a personal and social consciousness is raised regarding solid wastes and recycle or the consumption patterns of the society change or the society and environment turn into a literate society, the regulations will not be effective alone. Rotter (1966) generally describes the individuals who believe that the events affecting them are under their control as internal-controlled and individuals who believe that the events in question are under the control of external powers as external-controlled. This study shows that preservice social studies teachers generally expect the solution of the solid waste problem from the regulations and the government, which signifies that they are external-controlled in general. In their study, Karatekin, Kuş and Merey (2014) stated that the solution of environmental problems experienced by preservice social studies teachers in their cities was under the control of external powers and they believed that they would not be effective upon the solution of those problems, which could disable them to display the required participation behaviors. According to the results of this study, it is possible to make the following suggestions:

- In order to involve the university students actively in the solution of the environmental problems, it is required to enable them to confront those problems and become a part of that solution.

- It is required to know which conditions affect the attitudes that do not always lead the preservice teachers to positive behaviors regarding the solid wastes and recycle. In this study, it is observed that preservice teachers avoid especially the behaviors that require a participation regarding the solid wastes and recycle and they abandon their attitudes and behaviors in cases where the conditions are not formed instead of making an effort to form those conditions. For that reason, it is required to strengthen the personal and social persuasion of preservice social studies teachers that requires a participation, as well as their social and political behaviors.

- Non-governmental organizations are required to encourage the university students to participate in activities in order to strengthen their internal-control powers.

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