

Determination of the Affective Tendency of Individuals Toward the Environment

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ABSTRACT

Environmental problems, especially global environmental problems such as ozone layer depletion or global warming, are among the most urgent problems. Most of these global problems originate from human activities. Affective tendencies were investigated under the title of “attitude.” A review of literature presented a limited number of studies on attitude and affective tendencies toward the environment. The aim of this study was to determine the affective tendencies of the respondents toward the environment. In the study, a questionnaire form comprising the “Scale for Affective Tendencies toward the Environment” was used as data collection tool. The sample group of the study consisted of 600 personnel employed at Hacettepe University located at Ankara, Turkey. Overall arithmetic mean for the affective tendencies of the staff toward the environment was computed as 3.74, which can be considered favourable as it is greater than the middle value (3) of the five-point Likert range. In addition, the item indicating more favourable affective tendencies toward the environment was “I think the damage to the ozone layer is an issue everyone should be concerned about” ($\bar{x}=4.31$) while the respondents had less favourable affective tendency scores for the item “The government should provide financial support for research and development related to renewable energy, even if it results in higher taxes” ($\bar{x}=2.10$) in comparison to the other items. Furthermore, the affective tendencies of the respondents displayed significant differences with respect to gender, educational attainment, income level, income group, number of children, family type, occupation, environmental education, environmental NGO membership and environmental activity participation frequency ($p<0.05$). The sample consisting solely of the staff employed at Hacettepe University was the major limitation of the study.

Keywords: Environment, Affective Tendency, Environmental Problems

1. INTRODUCTION

The environment is “area(s) living beings are vitally connected to that they affect and, at the same time, are affected by in various ways” (Güney, 2003). Environmental problems have gained greater prevalence with the increase of human population and its concentration at particular areas. In time, environmental problems and pollution throughout the world have grown in dimension, and the ecology has suffered more impacts with every passing day. Human beings have intentionally or inadvertently harmed the environment or nature. The extent of the damage is aggravated as the human population grows and humanity does not give due importance to nature (Sarigöz, 2013). Environmental issues have become a part of daily life in the last two decades both in Turkey and throughout the world. Issues regarding deforestation and erosion, rapid population growth, unplanned urbanization and lack of green space, coastal degradation, human health hazards of industrial chemicals, nuclear energy and thermal power stations have become problems for which solutions are sought not only in Turkey but also in many countries throughout the world (Kayalı, 2010).

Since the 1970s, in the wake of the increase in environmental issues to a dangerous extent, various conferences and meetings were organized to take necessary measures to combat these environmental issues (Özsevgeç and Artun, 2012). Indeed, the United Nations Conference on the Human Environment held in 1972 in Stockholm was a milestone in the dissemination of the notion of environmental protection throughout the world. Similarly, a series of environmental laws were passed in Turkey and the protection of the environment was acknowledged as a civic duty (Aslan et al., 2008).

Affective tendencies comprise values, intentions, awareness and attitudes toward the environment. If a person thinks about an environmental issue at a personal level and this issue requires an action, then all the factors that elicit an action are indicative of the person’s affective tendency (Trudi and Mcbeth, 2001).

Environmental problems have a direct relationship with environmental awareness and environmental education. The impact of environmental awareness and of the adequacy of environmental education cannot be ignored in developing solutions to environmental issues (Çabuk and Karacaoğlu, 2003). For a sustainable life, one of the foremost obligations of every society is to equip children with the adequate attitudes, values, knowledge and skills on environmental protection (Davis, 1998). The family is the primary social setting where environmental education begins. The adults in the family have a decisive role in the formation of environmental awareness and responsibility in children, particularly through their consumption habits, waste disposal decisions, and behaviours toward plants and animals (Erkal, Şafak and Yertutan, 2011; Sadık, 2013). Although there are various studies emphasizing the significance of the family for environmental protection (Kaş, 2001; Küçüktüvek, 2007; Şafak and Erkal, 1995), the researchers found only a few studies investigating individuals' affective tendencies toward the environment (Çabuk and Karacaoğlu, 2003; Aksoy and Karatekin, 2011). Environmental consciousness and awareness can be accurately assessed with valid and reliable measures developed for this purpose.

The aim of this study was to determine the affective tendencies of the respondents toward the environment.

2. PROBLEM STATEMENT

According to explanation above, the problem in this study is: How is the affective tendencies of the respondents toward the environment in Ankara, Turkey?

3. LITERATURE REVIEW

A review of literature revealed that affective tendencies were mostly investigated under the title of "attitude." Attitude is mental and neural readiness that is organized through experience and has a directive and dynamic influence on a person's response to all objects and situations that he/she interacts with (Aksoy, 2014). Attitude comprises emotions, thoughts and behaviours concerning an object (Uzun and Sağlam, 2006). However, these aspects are not independent; they interact and they often have an internal consistency. Changing attitudes to instigate a change in behaviour constitutes a meaningful starting point for most researchers (Aksoy and Karatekin, 2011). Individual differences in environmental perception and attitude involve numerous factors including socio-economic status, life experience, religious and social values, interaction with the habitat and educational background (Özgen, 2012).

One of the greatest tasks for society is to equip individuals with the attitudes, values, knowledge and skills necessary for a sustainable life (Davis and Cooke, 1996 as cited in Davis, 1998). As a matter of fact, although there are both local and international studies on environmental attitudes and behaviours (Aksoy and Karatekin, 2011; Çabuk and Karacaoğlu, 2003; Ek et al., 2009; Loughland et al., 2003), the researchers did not encounter any research investigating the affective tendencies of adults toward the environment.

In their study on the environmental awareness and sensibility of medical students, Özdemir et al. (2004) determined that a segment of society expected to have high environmental sensibility did not show adequate interest to the subject and had low environmental awareness and sensibility.

The study carried out by Özmen et al. (2005) entitled "University students' attitudes towards environmental problems" employed the "Environmental Attitude Scale." Although 65% of the students expressed sensibility to environmental issues, 84.9% of the students had not participated in any environmental activity.

4. RESEARCH METHOD

The population of this study aimed at determining affective tendencies of the respondents toward the environment comprised the staff employed at Hacettepe University. Within this scope, 600 employees were chosen out of the whole Hacettepe University staff (n=10980) by random sampling. The data of the study was collected through face-to-face interviews with the participants by adhering to the questionnaire form developed.

In the study, the questionnaire technique was employed and the "Scale for Affective Tendencies toward the Environment" was used as the data collection tool. The "High School Environmental Survey" used to assess the environmental literacy levels of high school students for the report entitled "Environmental Education in Wisconsin: Are we walking the talk?" published by the Wisconsin Centre for Environmental Education (1994) was employed as the Scale for Affective

Tendencies toward the Environment. The Scale was adapted into Turkish by Karatekin (2011) and Cronbach's Alpha was found as 0.78 in the validity and reliability study, while Cronbach's Alpha was computed as 0.856 in the present study. In the Scale, a five-point Likert rating was utilized and the items were coded as "strongly disagree"=1, "disagree"=2, "undecided"=3, "agree"=4, and "strongly agree"=5. Negative items (2, 3, 5, 10, 11, 13, 15, 16, 17, 20, 23, 24) were reverse coded.

The data was analysed with SPSS 18.0 for Windows. Demographic findings were represented in frequencies and percentages, while the items of the scale were represented with arithmetic mean and standard deviation in addition to the percentages. Furthermore, in the comparison of the overall mean scores of the respondents by demographic characteristics, a t-test (for two groups) and an analysis of variance (for more than two groups) were conducted.

5. FINDING

Among the 600 staff members participating in the study, 46.8% (n=281) were male and 53.2% (n=319) were female. The respondents were aged 20-67, with an age average of 35.6. The majority of the respondents had graduate degrees (39.8) followed by those with associate/bachelor's degrees (38.8%). The percentages of academic, administrative, technical and medical staff participating in the study were 43.7%, 42.8%, 9.0% and 4.5%, respectively (Table 1).

Table 1: Respondent distribution by demographic characteristics

Variable	Group	Number (f)	Percentage
Gender	Male	281	46.8
	Female	319	53.2
Educational attainment	Elementary school degree	10	1.7
	Junior high school degree	24	4.0
	High school degree	94	15.7
	Associate/Bachelor's degree	233	38.8
	Graduate degree	239	39.8
Monthly income level	750 TRY and under	3	0.5
	751-1000 TRY	22	3.7
	1001-2000 TRY	86	14.3
	2001 TRY and over	489	81.5
Income group	Low	150	25.0
	Middle	423	70.5
	High	27	4.5
Marital status	Single	210	35.0
	Married	364	60.7
	Cohabiter	5	0.8
	Widow(er)/Divorced	21	3.5
Number of children	None	299	49.8
	One	140	23.3
	Two	123	20.5
	Three or more	38	6.4
Family type	Nuclear family	507	84.5
	Extended family	42	7.0
	Single-parent family	28	4.7
	Other	23	3.8
Occupation	Academic staff	262	43.7
	Administrative staff	257	42.8
	Technical staff	54	9.0
	Medical staff	27	4.5
Overall		600	100.0

Table 2 shows the distribution of respondents by various environmental variables. The researchers found 69.5% of the staff had not received any environmental education whereas 30.5% had received some environmental education. Books and TV/Radio were the source of information for respectively 60.2% and 68.0% of the respondents, while 69.2% were instructed at school. 9.8% of the respondents were members of environmental non-governmental organizations, whereas 90.2% were not affiliated with an environmental NGO. 41.2% stated that they did not participate in environmental activities (Table 2).

Descriptive statistics for the Scale for Affective Tendencies toward the Environment are presented in Table 3. Overall arithmetic mean for the affective tendencies of the staff participating in the study was computed as 3.74, which can be considered favourable as it is greater than the middle value (3) of the five-point Likert range. Examination of the descriptive statistics for the items in the scale revealed that the items with more favourable affective tendency scores in comparison to the other items were as follows:

- a."I think the damage to the ozone layer is an issue everyone should be concerned about." (\bar{x} =4.31)
- b."I enjoy listening to the sounds of animals such as birds and insects." (\bar{x} =4.24)
- c."Knowing about environmental problems and issues is important to me." (\bar{x} =4.16)
- d."I am concerned about the issue of deforestation." (\bar{x} =4.15)
- e."I think it is my responsibility to help solve environmental problems." (\bar{x} =4.12)

The items with less favourable affective tendency scores in comparison to the other items were as follows:

- a."The government should provide financial support for research and development related to renewable energy, even if it results in higher taxes."(\bar{x} =2.10)
- b."I think it is too difficult to change my friends' opinions about doing things to help the environment (for example; recycling)"(\bar{x} =2.93)
- c."I would oppose any environmental regulations that would restrict my freedom."(\bar{x} =2.95)
- d."Environmental restrictions should be lifted so that exploration and production of fossil fuels can be increased." (\bar{x} =2.97)

87.1% of the respondents expressed a favourable opinion to the item "I think the damage to the ozone layer is an issue everyone should be concerned about," while 4.8% expressed an unfavourable opinion. 84% of the respondents expressed a favourable opinion to the item "I enjoy listening to the sounds of animals such as birds and insects," whereas 6.8% expressed an unfavourable opinion. 37% of the respondents gave an unfavourable reply to the item "Environmental restrictions should be lifted so that exploration and production of fossil fuels can be increased" by choosing "strongly agree" and "agree," while 31.3% expressed a favourable reply with "strongly disagree" and "disagree" choices.

T-test and analysis of variance results on the comparison of affective tendencies toward the environment by individual characteristics were presented in Table 4. The results revealed that respondents' affective tendencies toward the environment did not have significant differences with respect to marital status and source of environmental knowledge ($p>0.05$), while they had significant differences with respect to gender, educational attainment, income level, income group, number of children, family type, occupation, environmental education, environmental NGO membership and environmental activity participation frequency

Table 2: Respondent distribution by various environmental variables

Variable	Group	Number (f)	Percentage
Environmental education	Yes	183	30.5
	No	417	69.5
Source of environmental knowledge	Books	361	60.2
	TV/Radio	408	68.0
	Family	362	60.3
	Internet	385	64.2
	School	415	69.2
	Other	17	2.8
	Environmental NGO membership	Yes	59
	No	541	90.2
Environmental activity participation frequency	Never	247	41.2
	Rarely	238	39.7
	Sometimes	96	16.0
	Often	19	3.1

Table 3: Descriptive statistics for the scale for affective tendencies toward the environment

Items	Strongly agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly disagree (%)	\bar{X}	SD
1. I enjoy watching TV programs about the environment.	31.3	45.3	13.2	8.0	2.2	3.96	0.98
2. I think there is not much I can do to help solve environmental problems.	7.3	13.7	16.8	38.8	23.3	3.57	1.19
3. I am not interested in reading about the environment.	5.0	9.5	16.3	43.5	25.7	3.75	1.09
4. I enjoy listening to the sounds of animals such as birds and insects.	48.8	35.2	9.2	5.3	1.5	4.24	0.93
5. I think most of the concern about environmental problems has been exaggerated.	6.7	8.0	15.0	33.7	36.7	3.86	1.19
6. Knowing about environmental problems and issues is important to me.	41.2	41.0	11.8	4.7	1.3	4.16	0.90
7. I am concerned about the issue of deforestation.	40.8	42.2	9.5	5.8	1.7	4.15	0.93
8. I think the damage to the ozone layer is an issue everyone should be concerned about.	50.3	36.8	8.0	3.0	1.8	4.31	0.88
9. I think more control should be implemented on industry and agriculture to protect the environment, even if things I purchase will cost more.	38.7	36.3	15.0	7.2	2.8	4.01	1.04
10. I am not concerned about the fact that the world's deserts are increasing in size.	6.3	9.3	12.5	33.5	38.3	3.88	1.20
11. I think there are already enough laws to protect the environment.	7.2	11.7	16.3	29.8	35.0	3.74	1.25
12. I believe I can contribute to the solution of environments problems by my actions.	27.3	41.0	21.5	7.5	2.7	3.83	1.00
13. I would oppose any environmental regulations that would restrict my freedom.	16.0	24.7	22.3	22.8	14.2	2.95	1.30
14. More land should be set aside for wildlife habitats.	30.8	33.3	26.0	7.0	2.8	3.82	1.04
15. Environmental restrictions should be lifted so that exploration and production of fossil fuels can be increased.	13.5	23.5	31.7	15.5	15.8	2.97	1.25
16. Things I do do not have a significant effect on the quality of the environment.	10.5	15.3	25.2	30.5	18.5	3.31	1.23
17. The government should provide financial support for research and development related to renewable energy, even if it results in higher taxes.	35.8	34.8	17.0	8.5	3.8	2.10	1.10
18. I am concerned about how much waste is produced in Turkey.	17.7	29.7	25.7	19.2	7.8	3.30	1.19
19. Laws should be passed and enforced to protect the quality of life in the future, even if it restricts individual freedoms.	33.8	37.7	17.7	7.5	3.3	3.91	1.05
20. I am not concerned about the rate of species extinction in the world.	5.7	9.2	10.7	33.0	41.5	3.95	1.18
21. I am concerned about environmental health hazards caused by air or water pollutions.	35.0	44.2	10.8	6.3	3.7	4.01	1.02
22. I would like to help solve environmental problems.	36.7	44.0	12.5	4.5	2.3	4.08	0.94
23. I think it is too difficult to change my friends' opinions about doing things to help the environment (for example; recycling)	15.8	21.3	27.3	25.3	10.2	2.93	1.23
24. I usually do not notice natural things around me such as flowers, trees and clouds.	6.8	6.5	11.0	31.2	44.5	4.00	1.20
25. I think it is my responsibility to help solve environmental problems.	38.5	43.8	11.0	4.3	2.3	4.12	0.93
26. If a person's car exceeds certain standards for air pollution, he/she should not be allowed to drive it.	40.5	32.5	15.0	7.2	4.8	3.97	1.13
27. I think individual efforts can contribute to the solution of environmental problems.	38.8	39.0	14.0	5.2	3.0	4.06	1.00
Overall						3.74	0.50

Table 4: Comparison of affective tendencies toward the environment by individual characteristics

Variable	Group	\bar{x}	SD	t/F	p
Gender	Male	3.82	0.51	4.356	0.000*
	Female	3.64	0.47		
Educational attainment	Elementary school degree	3.51	0.36	18.101	0.000*
	Junior high school degree	3.42	0.37		
	High school degree	3.49	0.46		
	Associate/Bachelor's degree	3.70	0.51		
	Graduate degree	3.91	0.47		
Monthly income level	750 TRY and under	3.37	0.38	6.349	0.000*
	751-1000 TRY	3.56	0.49		
	1001-2000 TRY	3.56	0.48		
	2001 TRY and over	3.78	0.50		
Income group	Low	3.65	0.45	6.142	0.000*
	Middle	3.75	0.51		
	High	3.99	0.57		
Marital status	Single	3.80	0.48	1.534	0.205
	Married	3.71	0.50		
	Cohabiter	3.71	0.79		
	Widow(er)/Divorced	3.66	0.65		
Number of children	None	3.79	0.49	5.458	0.001*
	One	3.73	0.54		
	Two	3.71	0.46		
	Three or more	3.45	0.49		
Family type	Nuclear family	3.75	0.49	4.309	0.005*
	Extended family	3.50	0.48		
	Single-parent family	3.84	0.48		
	Other	3.88	0.63		
Occupation	Academic staff	3.88	0.47	14.543	0.000*
	Administrative staff	3.63	0.50		
	Technical staff	3.54	0.46		
	Medical staff	3.82	0.56		
Environmental education	Yes	3.92	0.47	6.153	0.000*
	No	3.66	0.50		
Source of environmental knowledge	Books	3.80	0.54	1.634	0.158
	TV/Radio	3.69	0.52		
	Family	3.72	0.71		
	Internet	3.75	0.66		
	School	3.74	0.55		
	Other	3.72	0.70		
Environmental NGO membership	Yes	4.00	0.51	4.256	0.000*
	No	3.71	0.49		
Environmental activity participation frequency	Never	3.57	0.46	17.907	0.000*
	Rarely	3.83	0.48		
	Sometimes	3.87	0.51		
	Often	4.09	0.63		

p<0.05*

(p<0.05). Examination of group arithmetic means showed that women, respondents with higher educational attainments, higher incomes and fewer children, those who did not have an extended family type, academic and medical staff, those who were

environmentally educated, those with memberships in environmental NGOs, and those who participated in environmental activities more frequently had more favourable affective tendencies toward the environment in comparison to the other groups.

6. DISCUSSION

69.5% of the staff participating in the study had not received any environmental education while 30.5% had received some environmental education. This finding indicates that the provision of environmental education should be given greater priority.

The percentages of the staff participating in the study who had been informed about the environment via books, TV/radio and school were 60.2%, 68.0% and 69.2%, respectively. 9.8% of the respondents had memberships at environmental NGOs and 41.2% said they did not participate in environmental activities. This result suggests that efforts to ensure participation in environmental activities should be promoted.

In the study, overall arithmetic mean for the affective tendencies of the staff toward the environment was computed as 3.74, which can be considered favourable as it is greater than the middle value (3) of the five-point Likert range. Aksoy and Karatekin (2011) reported that mean affective tendency scores of prospective teachers were in the high affective tendency category (3.41-4.20) and Aksoy (2014) reported mean affective tendency scores in the medium affective tendency category for middle school students.

Items indicating more favourable affective tendencies were listed respectively as “I think the damage to the ozone layer is an issue everyone should be concerned about” (\bar{x} =4.31), “I enjoy listening to the sounds of animals such as birds and insects” (\bar{x} =4.24), “Knowing about environmental problems and issues is important to me” (\bar{x} =4.16), “I am concerned about the issue of deforestation” (\bar{x} =4.15), and “I think it is my responsibility to help solve environmental problems” (\bar{x} =4.12). This result suggests the respondents had greater awareness on important environmental problems including deforestation, ozone layer depletion and the responsibility to protect the environment as an individual.

Items indicating less favourable affective tendencies compared to other items were listed as “The government should provide financial support for research and development related to renewable energy, even if it results in higher taxes” (\bar{x} =2.10), “I think it is too difficult to change my friends’ opinions about doing things to help the environment (for example; recycling)” (\bar{x} =2.93), “I would oppose any environmental regulations that would restrict my freedom” (\bar{x} =2.95), and “Environmental restrictions should be lifted so that exploration and production of fossil fuels can be increased” (\bar{x} =2.97). This result indicates the environmental awareness of the respondents were below desirable levels for issues such as environmental regulations, fossil fuels and governmental support for research and development. Individuals should be further informed and a greater environmental awareness should be promoted, particularly for issues with lower environmental awareness.

According to t-test and analysis of variance results for the comparison of affective tendencies toward the environment by individual characteristics, the affective tendencies of the staff toward the environment did not have significant differences with respect to marital status and source of environmental knowledge ($p > 0.05$), while they had significant differences with respect to gender, educational attainment, income level, income group, number of children, family type, occupation, environmental education, environmental NGO membership and environmental activity participation frequency ($p < 0.05$). Study results revealed that women, respondents with higher educational attainments, higher incomes and fewer children, those who did not have an extended family type, academic and medical staff, those who were environmentally educated, those with memberships in environmental NGOs, and those who participated in environmental activities more frequently had more favourable affective tendencies toward the environment than other groups.

Study results revealed that the female respondents had greater affective tendencies toward the environment compared to the male respondents. Studies by Çabuk and Karacaoğlu (2003), Erol (2005), Özmen, Çetinkaya and Nehir (2005), Aksoy and Karatekin (2011), Özgen (2012), Sarıgöz (2013) also reported that women had greater awareness of environmental issues compared to men. These results support the results of the present study. However, Aksoy (2014) found similar affective tendencies toward the environment for female and male respondents.

Level of educational attainment influences attitude, behaviour and awareness toward the environment. Therefore, greater affective tendencies toward the environment in respondents with higher educational attainment is an expected result that indicated higher levels of educational attainment positively influenced affective tendency toward the environment.

Study results showed more favourable effective tendencies toward the environment for the high income group. Similarly, Özmen et al. (2005) reported higher environmental attitude scores for respondents whose incomes was greater than their expenditures.

Environmental problems are directly associated with environmental awareness and environmental education. The significance of individual awareness and the adequacy of environmental education for developing solutions to environmental problems should not be ignored (Çabuk and Karacaoğlu 2003). Accordingly, our study results showed that respondents who had received environmental education had more favourable affective tendencies toward the environment ($p<0.05$). This revealed that environmental education courses influenced affective tendencies of respondents toward the environment. A study carried out by in Yaylı and Berk (2009) in Ankara indicated that, although the students had a minimal level of consciousness about environmental problems, students who attended the course on environmental problems had greater environmental awareness than those who did not attend the course. Çabuk and Karacaoğlu (2003) reported that students who attended environmental education courses were more aware of and sensitive towards environmental issues. Studies conducted by Kayalı (2010) and Altınöz (2010) also reported advanced environmental attitude for respondents who attended environmental courses.

Study results revealed more favourable affective tendencies toward the environment for respondents who were members of any environmental NGO and those who participated in environmental activities more frequently than other groups. Similar to the results of the studies carried out by Karatekin and Aksoy (2012) and Aksoy (2014), this finding shows that respondents who had greater participation in environmental activities displayed more favourable affective tendencies toward the environment.

7. CONCLUSION

The results of the study conducted to determine affective tendencies of individuals toward the environment were as follows:

1. More than half of the respondents had not received any environmental education.
2. The majority of the respondents had learned about environmental issues at school, were not members of environmental NGOs, and did not participate in environmental activities.
3. Affective tendencies of the staff toward the environment displayed a significant difference with respect to gender, educational attainment, income level, income group, number of children, family type, occupation, environmental education, environmental NGO membership and environmental activity participation frequency ($p<0.05$).
4. The researchers would like to make the following suggestions in view of the study results:
5. Awareness on the subject of environmental protection could be promoted by teaching about the environment throughout the course of education,
6. Encouraging individuals to participate in environmental NGO activities and informing them on the subject,
7. Raising public environmental awareness by organizing environmental panels, symposia, etc.,
8. Conducting nationwide studies on the subject with more extensive sample groups.

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