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## RESEARCH PAPER

# A Qualitative Study on Turkish Preschool Children's Environmental Attitudes Through Ecocentrism and Anthropocentrism

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This study explores preschool children's attitudes towards environmental issues with a focus on the issue of gender as a factor affecting their attitudes. The study sample comprised 40 preschool age children living in Ankara, Turkey. The research adopted a qualitative approach, and the data were collected through interviews in which a questionnaire was administered. The interview questionnaire was adapted from 'The Children's Attitudes Toward the Environment Scale-Preschool Version' which contains 15 interview questions and sub-questions. The findings of our study indicate that most of the 5–6-year-old children initially appear to have ecocentric attitudes towards environmental issues in all the dimensions. However, when the children explained their reasons for choosing one of the two pictures, their responses were evaluated as emanating from anthropocentric attitudes. No difference in the attitudes of the preschool children was detected in relation to their gender. In conclusion, this study shows that the educational programmes at the preschool stage need to be broadened and improved, particularly in the provision of outdoor study in natural settings for the children to develop a more ecocentric attitude towards the environment.

**Keywords:** *Environmental attitudes; Preschool children; Qualitative research*

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## Introduction

The early years of life are regarded as the sensitive period in which human development reaches its optimal stage (Morrison, 2006; Mustard, 2000). The rationale supporting this claim is the recent research on the brain and on cognitive development related to the critical importance of starting the learning process in a child's early years (Berk, 2003; Nutbrown, 2006). Furthermore, the value of this early learning on the future development of a person has been highlighted in research on early childhood education (Kağıtçıbaşı, Sunar, Bekman, & Cemalçılar, 2005; Rushton & Larkin, 2001; Rutter, 2002). According to Keenan and Evans (2009), early childhood is a receptive period for the development of the personality of the child. During this time, individuals develop their basic values, attitudes, skills, behaviours and habits. Since early childhood is a receptive period for cognitive, social-emotional and physical development, it has an enormous potential for the creation of environmental attitudes (Samuelsson & Kaga, 2008). According to Basile (2000), children start to recognize and develop attitudes towards the environment starting from early childhood. Furthermore, in the literature, it is reported that if children do not develop positive attitudes towards environmental issues in the early years of life, it is possible that they may not develop such attitudes later (Basile, 2000; Tilbury, 1994; Wilson, 1993, 1994). As seen in the literature, it can be very difficult to alter negative environmental attitudes that were formed in the early years of childhood (Davis, 2009; Domka, 2004; Siraj-Blatchford, 2009; Wilson, 1993). For this reason, it is important to support the development of positive attitudes towards environmental issues in preschool children.

Miller and Levine (1996) defined an environmental attitude as 'evaluative tendency regarding some feature of the environment and can typically be phrased in terms of like and dislike or favor and disfavor' (p. 70). Rogers (2003), on the other hand, explained attitudes through the cognitive, affective and behavioural domains. Therefore, based on this tripartite model, attitudes towards environmental issues can be predicted by analysing and understanding what people believe (cognitive), what they feel (affective) and what they do (behavioural) (Pooley & O'Connor, 2000). In addition a useful categorization is made by Thompson and Barton (1994) to define environmental attitudes as ecocentric and anthropocentric. According to the authors, ecocentrism and anthropocentrism are two ways of understanding environmental attitudes. Ecocentrism intrinsically focuses on nature, excluding benefits for human beings, however, anthropocentrism regards human beings as the most important component of life; therefore, in this attitude, nature is considered to be valuable since damaging or conserving nature has a direct impact on human beings. Kortenkamp and Moore (2001) used the terms ecocentrism and anthropocentrism to differentiate moral reasoning patterns. According to them, people who have an ecocentric moral reasoning value the environment for its intrinsic value, apart from its usefulness to humans. People who have anthropocentric moral reasoning, on the other hand, believe that environmental quality is important because a degraded environment possesses a threat to the well being of people. To illustrate, an ecocentric attitude would be having respect for animals since they are important and beautiful members of the

world we live in; however, if the underlying reason for this respect is to derive benefit from animals, it indicates an anthropocentric perspective. In this respect, the key to the creation of ecocentric environmental attitudes may be found in early childhood learning (Ajzen, 2001; Biriukova, 2005; Grodzińska-Jurczak, Stepska, Nieszporek, & Bryda, 2006).

In this study, we chose to use Thompson and Barton's categorization (ecocentric and anthropocentric) to explore the attitudes of preschool children towards environmental issues.

There are limited examples in the literature of research that describe the environmental attitudes of preschool children or investigate the factors that may affect preschool children's attitudes towards environmental issues. However, there has been some useful work, which is summarized below.

Musser and Diamond's (1999) study was the main inspiration of the current research. To explore young children's environmental attitudes, Musser and Diamond created the Children's Attitudes towards Environment Scale-Preschool Version (CATES-PV). They administered the scale to 42 preschool children (25 girls and 17 boys) aged from 37 to 40 months. The results indicated that children's attitudes towards the environment were generally positive, they were moderately correlated with age,  $r(40) = 0.37, p < 0.01$ , and their attitudes were similar in relation to their gender,  $F(1, 40) = 2.41, Ms = 2.87$  and  $2.97$ , for girls and boys, respectively.

The dimensions explored in the study by Grodzińska-Jurczak et al. (2006) were similar to those selected in our research. The authors provided useful information about preschool children's attitudes towards animals and plants, energy and paper saving, reuse and recycle in Poland. The study covered 686 parents and 674 six-year-olds from 30 preschools. The researchers also used the CATES-PV questionnaire. The results reported that almost all of the children considered that they were respectful towards animals and plants (95.7%), careful about cleanliness of their surroundings (95.1%) and aware of saving water (95%). Moreover, the majority of the children were reported to be aware of the reuse of different materials (e.g. giving old toys to other children) and importance of saving energy and paper. Almost 40% of the children were reported as using environmentally friendly transportation and 30% were involved in separating wastes at home.

Although the available literature is limited, there are also a couple of studies conducted by Turkish researchers that aimed to explore Turkish children's environmental attitudes. Haktanir and Cabuk (2000) worked with children in Turkey and used a scale they had developed to rate perceptions and ideas of a group of 4–6-year-olds ( $N = 80$ ) to 18 environmental problem cases related to the children's and their families' demographic information (gender, age and some other parental variables). As a result, gender, age, family structure, mother's job, ages of parents and father's academic background was found to be insignificant in terms of the children's perceptions on environmental issues.

In another study, Kesicioglu and Alisininoglu (2008) aimed to investigate the attitudes of 353 Turkish preschool children towards the natural environment using an

Environmental Reaction Inventory developed by Surbrook (1997). Gender was tested in this study, as a factor shaping the preschool children's environmental attitudes and found to be significant with boys having more positive attitudes than girls towards environmental issues.

Despite the examples of the research given above, there is still little evidence on how young children actually shape their attitudes towards environmental issues and this remains an area that should be investigated in depth. Therefore, the current research was devised to describe preschool children's attitudes towards environmental issues and to discover the relationship between gender and attitudes towards environmental issues. In particular, this study aims to explore preschool children's environmental attitudes from ecocentric and anthropocentric perspectives (Thompson & Barton, 1994). In order to achieve these aims, following research questions were determined:

- (1) How preschool children shape their attitudes, through ecocentrism and anthropocentrism, towards consumption patterns, environmental protection, recycling and reusing and living habits?
- (2) Does gender make a difference in shaping preschool children's ecocentric and anthropocentric attitudes towards consumption patterns, environmental protection, recycling and reusing and living habits?

## **Method**

### *Research Design*

This study aims to describe preschool children's attitudes towards environmental issues in terms of consumption patterns, environmental protection, recycling and reusing and living habits with an emphasis on gender differences. Basic qualitative research methods were utilized for both data collection and the data analysis procedures in order to gain an in-depth understanding of preschool children's attitudes to the environment. Basic qualitative research design seeks to achieve a very detailed understanding of an issue or a problem (Merriam, 2009). Moreover, as Creswell (2007) stated in a qualitative study, the researcher strives to obtain in-depth information from a small number of samples and as reported by Patton (2002), this method allows the researchers to obtain first-hand records about the participant's experiences, understandings and knowledge. In line with these comments related to qualitative research, the data of the current study were collected through interviews with 40 preschool students and then analysed by employing qualitative research techniques in order to achieve an in-depth exploration about attitudes of the sample group of preschool children towards environmental issues. The children's attitudes were categorized within the framework of ecocentrism that values nature for its own sake and anthropocentrism that advocates the protection of environment in order to maintain and enhance human life (Thompson & Barton, 1994). In order to investigate the association between gender and children's attitude orientation (ecocentric and anthropocentric), chi-square tests were conducted using SPSS statistical software.

Golafshani (2003) comments that the researcher has an important role in the quality of a qualitative research; for this study, the first author prepared the interview protocol and conducted all the interviews with 40 preschool children.

### *Instrument*

The interview questionnaire was adapted from the CATES-PV (Musser & Diamond, 1999). The CATES-PV was translated from English into Turkish and based on the suggestions from original authors; a picture was prepared for each item in order to help preschool children more easily understand the questionnaire items. The pictures were drawn by an artist and reviewed by two early childhood educators and one environmental educator. After the experts' views were obtained, the necessary modifications were made under the supervision of an early childhood educator. After the modifications were completed, a pilot study was conducted with 10 ( $F = 4$  and  $M = 6$ ) preschool children to ensure comprehensibility of the interview questions and pictures. The participants in the pilot study were randomly selected from children aged five and six attending state preschools. During the pilot study procedure, the one-to-one interviews were audio-taped and transcribed by the researchers. The pilot data were analysed carefully in order to determine the dimensions, sub-dimensions and initial codes. As a result, the placement order of some of the questions was changed, three questions were excluded, and then the dimensions and sub-dimensions were re-determined. The final form of the interview protocol consisted of 12 main interview questions and related sub-questions. An outline of the questions is given in Table 1.

During implementation, the two different model behaviours were shown to each child for each of the 12 interview questions, one representing a positive attitude and the other, a negative attitude. For example, as shown in Figure 1, there are two pictures of a child brushing his/her teeth. In the left-hand picture, the tap is left running, whereas in the right-hand picture, the tap is turned off while the child is brushing his/her teeth. The interviewer presents the following description of the children's behaviour (see Table 1). 'Some children like to leave the water running while they are brushing his/her teeth but other children always turn the water off while they are brushing his/her teeth'. Then the interviewee is asked to identify which child in the picture are they most like. Then according to the child's answer, they are asked the sub-questions to elicit the reason for their choice. The sub-question for the children, who turns the tap off while cleaning his/her teeth, is: 'Why do you turn the tap off while you are brushing your teeth?'.

### *Participants*

The participants of the study were 5- ( $N = 16$ ) and 6- ( $N = 24$ )-year-old preschool children. There were 18 boys and 22 girls, all from middle socio-economic status families. The 40 participants of this study were attending four different state preschools in Ankara supervised by Ministry of National Education of Turkey. The

Table 1. Interview protocol

| Dimensions               | Sub-dimensions   | Questions   |
|--------------------------|--|---|
| Consumption patterns     | Water consumption  | Some children leave the water running while they brush their teeth, but other children always turn the water off. Choose which of the two groups of children you like the most?   |
|                          | Paper consumption  | Some children use both sides of paper when they draw or write, but other children use only one side of the paper when they draw or write. Choose which of the two groups of children you like the most?                       |
|                          | Electricity consumption  | Some children leave the lights on when they leave the room, but other children turn the lights off when they leave a room. Choose which of the two groups of children you like the most?                                      |
| Environmental protection | Plants, insects and animals  | Some children like to look at plants and insects outside but never bring them home, but other children like to bring home plants and insects they find outside. Choose which of the two groups of children you like the most? |
|                          |  | Some children like to feed birds, but other children do not like feeding birds. Choose which of the two groups of children you like the most?   |
|                          |  | Some children never disturb or catch animals they find outside, but some children like to disturb or catch animals. Choose which of the two groups of children you like the most?   |
|                          | Some children think that wild animals should be protected, but others think that wild animals can be killed. Choose which of the two groups of children you like the most? |   |
|                          | Environmental pollution  | Some children pick up litter they see on the ground and put it in a litter bin, but other children do not do this and they just throw the litter on the ground. Choose which of the two groups of children you like the most? |
| Recycling–reusing        | Recycling  | Some children put recyclable items in the recycle bin, but other children just throw things away when they are finished with them. Choose which of the two groups of children you like the most?                              |
|                          | Reusing  | Some children give their old toys to other children or reuse them in different ways when they do not play them anymore, but others throw them away. Choose which of the two groups of children you like the most?             |

(Continued)

Table 1. (Continued)

| Dimensions    | Sub-dimensions         | Questions  |
|---------------|------------------------|--|
| Living habits | Playground preferences | Some children like playing outside, but other children do not like playing outside. Choose which of the two groups of children you like the most?  |
|               | Residence preferences  | Some children like living in crowded places such as cities and towns, but other children like/would like to live in places where there are more plants, trees and animals. Choose which of the two groups of children you like the most? |



Figure 1. An example of interview pictures—water consumption.

schools did not have a specific environmental education program. After ethical and parental permission were obtained, a participant list was constructed, and each interview appointment was planned with the help of preschool teachers in each school.

*Data Collection and Analysis Process*

The data collection procedure was completed over a 3-month period from November 2009 to January 2010. After agreeing with a class teacher on a specific time to

meet with children, the interviews were conducted in a room allocated by the school administration. The child and the researcher were alone in the room, and no interruptions occurred during the one-to-one interviews. The interview questions were presented in the same order and the participants were asked to express their ideas after looking at the pictures. The children were encouraged to respond to the questions about environmental issues in detail; hence, they were given time to think more about their responses. The children were told that they could stop or take a break if they were bored. In addition, the researcher sometimes repeated the questions in order to ensure that the questions were fully and correctly understood by the children. The data obtained from the one-to-one interviews were audio-taped, and then each interview record was transcribed and coded by the researcher. All the interviews were realized in Turkish, the mother tongue of all the children, and transcription, coding and analysis were also made in Turkish. Afterwards, those were translated into English for reporting purposes. Coding was realized based on the information obtained from a qualitative research specialist and the related literature (Creswell, 2007; Merriam, 2009; Patton, 2002). In this manner, in the first stage, the codes for ecocentric or anthropocentric were recorded together with several examples for each code. After the codes were assigned, the data set was revised and coded once more for each pattern. Finally, the children's attitudes were coded as ecocentric or anthropocentric for each question and the sub-questions. The data analysis process was conducted by two independent coders as proposed in the study by Creswell (2007). First coder was the first author and the second coder was a doctoral candidate in the early childhood education program of elementary education, specializing in education for sustainable development. Both the coders analysed the transcribed interview in order to increase the inter-rater reliability, and except for four statements, the coders reached full agreement on all the codes. Finally, the codes were revised by an environmental education expert and an early childhood specialist.

## **Findings**

The preschool children's attitudes towards environmental issues were categorized under four dimensions and were distinguished as ecocentric or anthropocentric in accordance with the framework devised by Thompson and Barton (1994). Together with one of the research questions of the study, gender was considered as a factor to differentiate environmental attitudes. As a result, the preschool children's attitudes towards environmental issues and corresponding sample answers for each dimension and sub-dimension are presented below. In the figures and the comments, 'F' and 'M' refer to female and male children, respectively.

### *Consumption Patterns*

The first dimension was 'Consumption Patterns' with the sub-dimensions being water, paper and electricity consumption. As reflected in Figure 2, the findings of

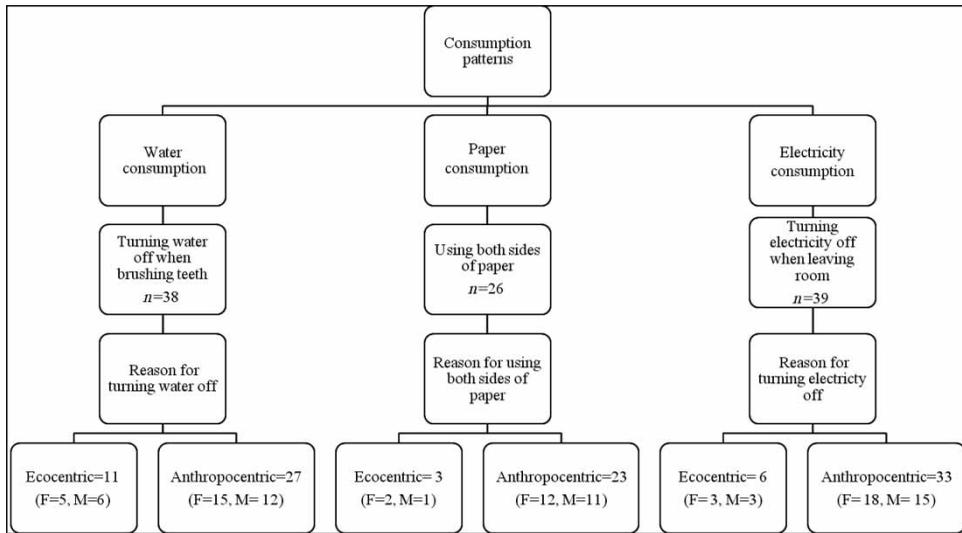


Figure 2. Attitudes of children in the study towards consumption of resources.

this dimension indicated that a large number of the 40 preschool children in the sample selected the child in the picture who turns the water off ( $n = 38$ ); uses both sides of paper ( $n = 26$ ) and turns the electricity off ( $n = 39$ ). However, children's explanations for the reasons for their choice reflected their anthropocentric point of view (Figure 2) and can be seen in the examples from the interviews given below.

If we do not turn the water off while brushing teeth, we waste water and we have to pay a lot more for the water bill. (M 1)

I turn the water on just when I need water; if not, we waste money and my mother will not be able to buy my school materials because we do not have enough money. (F 18)

I do not like using reverse side of the paper while drawing since I want to draw good pictures and drawing on the reverse side makes my picture awful. (F 10)

I use only one side of paper while drawing because if I draw on both sides of paper, I cannot display both pictures. (M 11)

If I don't forget, I turn the lights off when I leave my room because using more electricity wastes money. If we do not turn the lights off we have to pay more for electricity bill. (F 16)

I always turn the lights off since I do not want to run out of electricity. Leaving lights on consumes electricity, electricity may run out and there may not be more supplies. (M 8)

Some examples of the children's ecocentric responses are as follows:

Because consuming much water corrupts the stability of nature. I do not want to destroy nature. If we consume water carelessly, we may destroy our world, and in time water will

become scarcer. Then this will result in global warming results and all animals will die. (F 8)

In order to make paper, trees are cut down; indeed, I do not approve of cutting down so many trees because animals cannot feed. For example, the giraffe eats the leaves of trees, birds live in trees; therefore, I use both sides of paper when drawing or writing. (M 5)

I always leave the lights off while leaving room in order not to consume energy. If we waste more electricity we consume energy that pollutes our environment. (M 5)

The responses of the preschool children indicated that gender did not seem to have an effect on their attitudes towards consumption patterns. Similarly, no differences were observed for sub-dimensions between girls and boys as presented in Figure 2. The qualitative findings were confirmed by the chi-square test. The results of the chi-square test for independence indicated no significant association between gender and environmental orientation towards water [ $\chi^2(1, n = 38): p = 0.83$ ], paper [ $\chi^2(1, n = 26): p = 1$ ] and electricity consumption [ $\chi^2(1, n = 39): p = 1$ ] (Table 2).

Table 2. The relationship between gender and environmental attitude

| Dimensions                        | Gender | Environmental attitude |                     | p-Value (n) |
|-----------------------------------|--------|------------------------|---------------------|-------------|
|                                   |        | Ecocentric (n)         | Anthropocentric (n) |             |
| Water consumption                 | Female | 5                      | 15                  | 0.83 (38)   |
|                                   | Male   | 6                      | 12                  |             |
| Paper consumption                 | Female | 2                      | 12                  | 1 (26)      |
|                                   | Male   | 1                      | 11                  |             |
| Electricity consumption           | Female | 3                      | 18                  | 1 (39)      |
|                                   | Male   | 3                      | 15                  |             |
| Not disturbing plants and insects | Female | 12                     | 4                   | 0.79 (33)   |
|                                   | Male   | 11                     | 6                   |             |
| Likes to feed the bird            | Female | 7                      | 3                   | 1 (21)      |
|                                   | Male   | 7                      | 4                   |             |
| Not disturbing other animals      | Female | 11                     | 3                   | 1 (32)      |
|                                   | Male   | 14                     | 4                   |             |
| Caring about wild animals         | Female | 17                     | 2                   | 1 (34)      |
|                                   | Male   | 13                     | 2                   |             |
| Environmental pollution           | Female | 3                      | 6                   | 1 (23)      |
|                                   | Male   | 5                      | 9                   |             |
| Recycling                         | Female | 0                      | 20                  | 1 (38)      |
|                                   | Male   | 0                      | 18                  |             |
| Reusing                           | Female | 4                      | 11                  | 1 (28)      |
|                                   | Male   | 4                      | 9                   |             |
| Play area preferences             | Female | 5                      | 11                  | 1 (30)      |
|                                   | Male   | 5                      | 9                   |             |
| Residence area preferences        | Female | 6                      | 14                  | 1 (38)      |
|                                   | Male   | 5                      | 13                  |             |

Environmental Protection

The second dimension was 'Environmental Protection' and the sub-dimensions were plants and bugs, other animals and environmental pollution. According to the results of this dimension, most of the preschool children chose the child exhibiting positive behaviour in the pictures, the child who never brings plants and bugs to home ( $n = 33$ ) and never disturbs them ( $n = 32$ ), who feeds the birds ( $n = 21$ ) and cares about animals ( $n = 34$ ). Moreover, most of the preschool children ( $n = 23$ ) agreed with the child in the picture, who picks up litter from the ground and throws it into the litter bin as displayed in Figure 3.

When preschool children presented the reason for their choice, they had ecocentric attitudes towards plants and bugs and other animals (Figure 3) as shown in the following comments. A 6-year-old (F 2) stated 'I do not want to make plants and insects afraid of me; therefore, I never bring them home'. Similarly, another 6-year-old (M 1) said, 'I do not want to kill flowers, if I bring them home, they cannot live, they miss their home and they die'.

Similarly, the responses below reveal that preschoolers mainly possess ecocentric attitudes towards animals.

I do not try to disturb or catch animals. I believe that they have right to wander freely in the streets. If we catch them they get unhappy and may die. (M 13)

If we disturb them, they will be worried that they will be killed; it is very disturbing for them. I do not want to make them unhappy. (F 13)

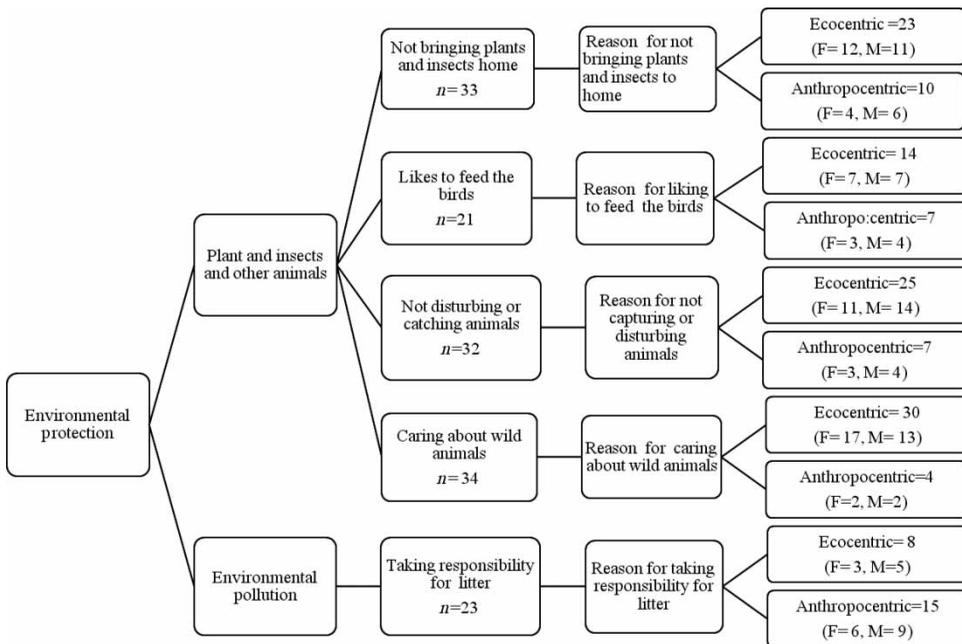


Figure 3. Attitudes of children in the study towards environmental protection.

I love birds very much, they are very sweet, they are very beautiful; therefore I always feed them. (M 1)

I had a bird, her name was Cik Cik. She died; I was very sad and I cried. I used to feed her every day. I think birds need us to survive. (F 13)

I believe that wild animals in the wild forest should not be killed. Because like people, they have right to live and everybody should protect them. (F 5)

Wild animals are dangerous; however, we should not kill them. I believe that they should live; they have a right to live. Indeed, sometimes, they can be sweet. They are very innocent. If we kill them they cannot see their children in future. (M 8)

Some of the anthropocentric responses of the children about plants, insects and animals are presented below:

If we bring them (plants and insects) home, they may poison us. I think bringing plants and bugs home is harmful for people. (M 19)

I do not like feeding birds. Once I tried to give bread to the pigeons in our balcony but they flew towards me and I was scared. (M 3)

I do not disturb animals around me and I do not try to catch them because my mother does not let me touch them. They are dirty. I can get ill if I try to catch them. (F 6)

Wild animals can hurt people and so people may kill them in order to live. (M 6)

In contrast to their ecocentric attitudes towards plants, insects and other animals, most preschool children ( $n = 15$  out of 23) explained why they pick up litter from the ground and throw it in the litter bin from an anthropocentric perspective. For example, a 5-year-old (F 3) said that, 'If we do not pick up litter, dustmen have to work more' and another child of the same age (M 6) responded, 'Policemen, litter men, even God gets angry if we do not pick up litter'.

On the other hand, examples of ecocentric answers about environmental pollution are shown below:

I am very careful about not leaving garbage on the street because these kinds of garbage make our street dirty; then the world gets dirty. Garbage produces bad smelling gases and these gases are harmful for our world. (F 20)

I want to make our streets clean; therefore, for example, if I see a banana skin, I pick it up and throw it in a rubbish bin. (M 17)

Furthermore, the comments from the children indicated that their attitudes towards environmental protection did not seem to differ in terms of gender. The quantitative results verified these findings and the chi-square tests that were reported for independence indicated no significant association between gender and environmental orientation towards environmental protection in terms of not disturbing plants and insects [ $\chi^2(1, n = 33): p = 0.79$ ], likes to feed the birds [ $\chi^2(1, n = 21): p = 1$ ], not disturbing other animals [ $\chi^2(1, n = 32): p = 1$ ], caring about

wild animals [ $\chi^2(1, n = 34): p = 1$ ] and environmental pollution [ $\chi^2(1, n = 23): p = 1$ ] (Table 2).

### *Recycling and Reusing*

The third dimension was 'Recycling and Reusing', and it was found that most of the preschool children ( $n = 38$ ) do not possess a positive attitude towards recycling or seem as if they had not developed a reasoning for recycling and reusing. For example, a 6-year-old ( $F 14$ ) explained that 'I am like the children who throw things away when they're done with them because I have never seen such a box to put rubbish in'. Similarly, a 6-year-old boy explained that 'I saw a recycle bin on my uncle's computer screen. I am like the boy who throws things away when he is finished with them because we do not have such a bin to put things in'.

In this dimension, the preschool children's attitudes towards reusing were also investigated. Initially, it seemed that the preschool children ( $n = 28$ ) seemed to have ecocentric attitudes towards reusing, however, their anthropocentric reasoning can be seen in the examples below.

Hmm . . . I am like the child giving his old toy to someone because if I give my old toys to my friend he will give his old toys to me. (M 7)

I do not give my old toys to anyone since I do not throw them away as the children in these pictures because if I give or throw my toys away I will not have any toys to play with. (F 3)

In contrast, examples of ecocentric responses are presented below:

I do not want to waste them (toys) and so I never throw them away. I play with them very carefully and my mother saves my old toys. (M 17)

We give the old things that we do not use to other people. For example, I gave my bicycle to my friend, because in order to produce new bicycle, much money, time and energy is required. (F 8)

To summarize, the preschool children's attitudes related to recycling and reusing indicated that the children do not have ecocentric attitudes in terms of the recycling and reusing process. Moreover, their attitudes towards recycling–reusing appear not to be based on gender (Figure 4) and the chi-square test results confirmed these qualitative findings. Chi-square tests for independence indicated no significant association between gender and environmental orientation towards recycling [ $\chi^2(1, n = 38): p = 1$ ] and reusing [ $\chi^2(1, n = 28): p = 1$ ] (Table 2).

### *Living Habits*

The final dimension for the preschool students' environmental attitudes was 'Living Habits' and the sub-dimensions were play area and residence preferences. According to the results, most of the 40 preschool children ( $n = 30$ ) stated that they like to play outside and many ( $n = 38$ ) said they would like to live in a house

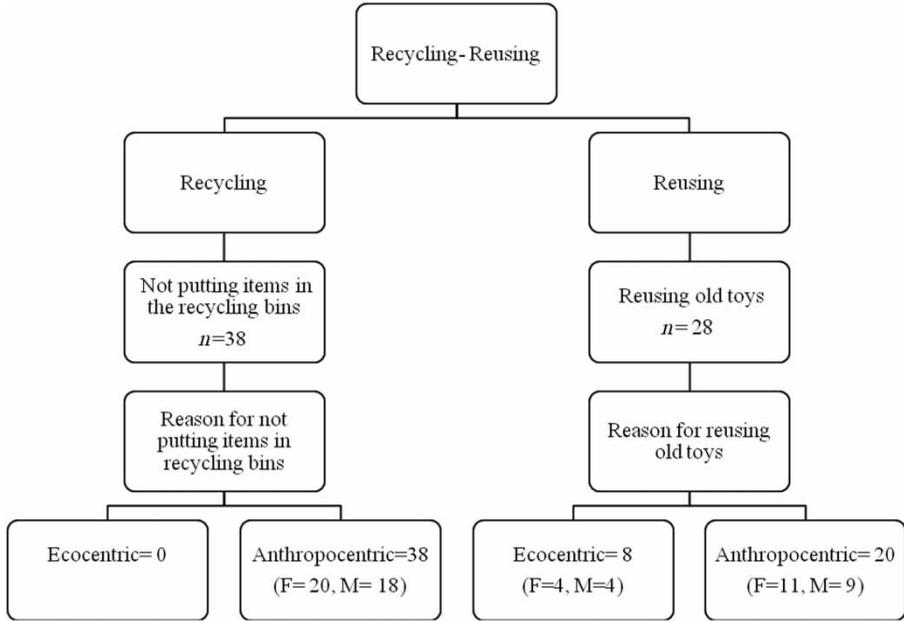


Figure 4. Attitudes of children in the study towards recycling and reusing.

surrounded by trees and animals, which can be evaluated as having ecocentric attitudes for living preferences. However, when they were asked about the reason for their choice, their explanations reflected an anthropocentric way of thinking. For example, a 6-year-old (*F* 10) stated that ‘I like playing outside since there are many toys in the park and also I can play rough and tumble’ and a 6-year-old (*M* 7) stated that ‘I like playing outside since lots of my friends play in the park with sand’. In addition, the preschool children in this study revealed anthropocentric attitudes in the reasons of their decisions about residence preferences. A 5-year-old (*F* 1), for example, commented ‘I want to live in that house because if we live in such a house, my mother would let me play outside. There are no cars here; therefore, I can ride bicycle’. Similarly a 5-year-old (*M* 1) said ‘I would like to live in such a place in which many animals live because animals save us from burglars’.

Examples of children’s ecocentric way of thinking about play area and residence preferences are given below:

I like playing outside because I love animals, I love feeding them. While playing, sometimes, I feed them milk. (*F* 2)

Children love playing outside very much because there are trees, flowers and fresh air. (*F* 3)

I would like to live in such a place that there is no noise, far from cars because cars make uproar and make the environment dirty. (*M* 15)

Again, the answers of the preschool children indicated that gender did not seem to have an influence on their attitudes towards living habits. In their choice of picture, both girls and boys displayed ecocentric attitudes for the playground and residence preferences; however, their reasoning for most of the cases reflected their anthropocentric point of view as shown in Figure 5. Chi-square tests verified these qualitative findings. The results of the chi-square tests that were reported for independence indicated no significant association between gender and environmental orientation towards living habits in terms of play area preferences [ $\chi^2(1, n = 30): p = 1$ ] and residence preferences [ $\chi^2(1, n = 38): p = 1$ ] (Table 2).

**Discussion**

The findings of this study indicated that most of the preschool children participated in the study have positive attitudes towards water, paper and electricity consumption and their attitudes according to the pictures they selected can be described as ecocentric. There are similar results in the literature as in the research by Grodzińska-Jurczak et al. (2006) in Poland where it was found that most of the children in the study used water and electricity carefully and saved paper. However, in our study, when the underlying reason for their positive-ecocentric attitudes was elicited, the preschool children's explanations revealed an anthropocentric point of view. In other words, although preschool children in the current study seem to value nature for its own sake (ecocentric), they advocate the protection of environment in order to maintain and enhance their lives (anthropocentric). The reasons for such an anthropocentric attitude can be explained by Piaget's stage theory. According to Piaget, between the ages of two and seven, children are still in the preoperational

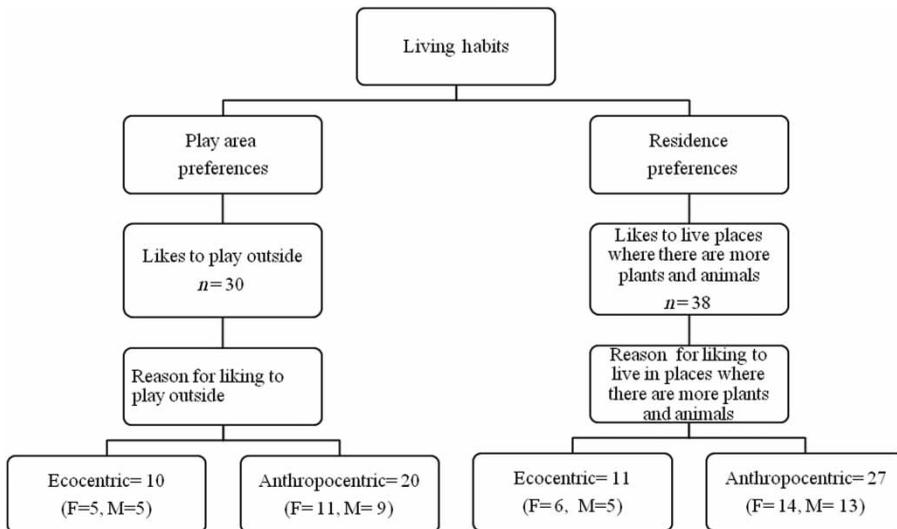


Figure 5. Attitudes of children in the study towards living habits.

stage in which 'egocentrism' is considered to be a major characteristic of the child. Thus, preschool children tend to care about only their own perspective and fail to take account of the views of others (Piaget, 1959). Therefore, children's anthropocentric attitudes towards consumption patterns can be explained by their age and stage of cognitive development and this outcome may be important for education specialists in that if children are encouraged to consider themselves as part of nature, then they may be more inclined to value nature for its own sake.

It was only in the dimension of environmental protection that we observed ecocentric attitudes for both children's initial decisions and further explanations. The major reason for such a difference in children's attitudes for this dimension can be explained by the dimension being related to animals and plants. Although, according to Piaget, preschool children are egocentric in their cognitive development, this finding reveals that animals and plants are more tangible objects in their world rather than consumption patterns, recycling and reusing and living habits. In other words, it may be easier for the preschool children to connect animals and plants with nature, compared with other dimensions (consumption patterns, recycling and reusing and living habits) which may be defined as intangible. Moreover, the reason why children in the preoperational stage had ecocentric attitudes only towards animals and plants can be explained by their past and present experiences. This result was similar to that found by Grodzińska-Jurczak et al. (2006) and the evaluation made by Bandura (1977) concerning the fact that such attitudes develop from experience. Early childhood education settings in Turkey expose children to many activities concerning environmental protection issues such as caring for domestic pets in the classroom and gardening (Ministry of National Education, 2006). As reported by Kidd and Kidd (1990), animal-related experiences, such as visiting animal shelters and livestock farms, have a positive impact on children's attitudes towards animals and environment.

Similar to the results of the study conducted by Grodzińska-Jurczak et al. (2006), the preschool children in our study revealed anthropocentric attitudes towards recycling and reusing. The most probable reason for this attitude can be explained by children's cognitive level. As mentioned above, preschool children are in the preoperational stage and they are not capable of thinking from the perspective of the environment. On the other hand, as Palmer (1995) stated, irrespective of cognitive level they have attained, preschool children are capable of comprehending the concepts of reusing and recycling. In his study, Palmer (1995) showed that 4-year-olds understood that waste products can be managed and collected in an organized manner, and furthermore, 6-year-old children are able to recognize which materials can and cannot be recycled. Moreover, another study by Palmer, Grodzińska-Jurczak, and Suggate (2003) emphasized that environmental education programs were effective in changing environmental attitudes towards reusing and recycling. They reported that 4-year-old children in the UK enrolled in a structured environmental education programme had better attitudes towards waste management than their Polish counterparts who had not experienced the same educational programme. Therefore, the anthropocentric attitudes of preschool children towards

recycling–reusing issues may be explained by the lack of content concerning environmental issues in the preschool curriculum or syllabus. This shows the need to improve the level of the environmental education of preschool children.

The preschool participants of the current study also revealed anthropocentric attitudes towards their preferences for play and residential areas. Although they chose the pictures that indicated natural environments, their reasoning was in line with the definition of anthropocentrism which is that nature is valued since degrading or preserving nature has a negative or positive impact on human beings. In a similar way to the discussions above, children in our study valued the environment for their own sake. Actually, whatever their reasoning, their preference to be in a natural environment may help them to value nature for its own sake in the long term. As reported by Grodzińska-Jurczak et al. (2006), preschool children's attitudes towards environmental issues were dependent on their place of residence and in their study; most of the children with positive environmental attitudes were reported to be living in rural areas. Moreover, as Robertson (2009) claims, the reason why children living in rural areas have positive attitudes could be that they are provided with many more opportunities to experience the natural environment. According to Robertson (2009), opportunity is a significant attribute in shaping children's environmental attitudes; children should be provided with a place to play outside, such as a park, a farm or a beach in order to adopt ecocentric attitudes in their lives. Similarly, Bronfenbrenner (1986) declared that the environment was a dynamic unit that had an impact on children's lives. The environmental settings in which a child lives, such as home, school, neighbourhood parks and play areas, have a powerful impact on child development since the child is an active recipient whose personality is formed by their environment. Additionally, the relevant literature proposed that early life outdoor experiences had an impact on the formation of environmental attitudes. The more children have the opportunity to spend time outdoors during their early childhood, the more they adopt positive attitudes towards environmental issues (Ewert, Place, & Sibthorp, 2005). Thus, early childhood education programmes should provide children with a variety of educational experiences which allow them to spend more time in outdoors (Olgan & Kahriman-Ozturk, 2011).

#### *Relationship Between Gender and Children's Attitudes Towards Environmental Issues*

The findings of this study indicated that children's attitudes towards environmental issues in terms of consumption patterns, environmental protection, reusing–recycling and living habits were not associated with gender. In the literature, there are studies supporting this claim, for example, Musser and Diamond (1999) indicated that preschool children's environmental attitudes did not differ in relation to gender. Haktanir and Cabuk (2000) found gender to be an insignificant factor in determining children's attitudes related to environmental issues. Despite the fact that the effect of gender on environmental attitudes during preschool years was insignificant, studies conducted with older children (from the beginning of puberty) suggested that females were inclined to be more interested in environmental issues and had more positive attitudes

(Alp, Ertepinar, Tekkaya, & Yılmaz, 2006; Taskin, 2009; Tuncer, Ertepinar, Tekkaya, & Sungur, 2005).

Similarly, Tikka, Kuitunen, and Tynys (2000) reported that female teenage respondents had more positive environmental attitudes and a greater sense of responsibility towards the environment than their male counterparts. The authors mentioned that whereas males are more likely to emphasize mastering nature and benefiting from natural resources, females have a more emotional attitude towards nature. Since females, as indicated by the authors, have traditionally been responsible for looking after the home and children, such behaviours could be perceived as a way of taking care of their offspring. Similarly, Weaver (2002) explained that the reasoning behind this argument lies in the combination of women's role as caregivers for children and their role in the household, where they do most of the house work, in addition to working in the paid labour force, which is in direct contrast to men's historical 'breadwinner' role. Moreover, Tuncer et al. (2009, p. 9) evaluated the gender difference in environmental attitudes in Turkey and reported that,

as is the case in other parts of the world, in Turkey, environmental topics in general are considered an appropriate area for female interest. Therefore, considering the theories and explanations posited (deposed) in the literature, the finding that female pre-service teachers have more favourable attitudes and have more responsible actions toward the environment than males is an expected outcome due to the caregiver role of females in Turkey and their engagement in life maintenance activities such as early child education and involved in neighbourhood activities and community issues more than males.

Therefore, although preschool children's environmental attitudes did not differ in relation to gender, it may become different for males and females when they become older and assume particular social roles. Yet, environmental education in the preschool stage, when gender is not an influencing factor on the attitudes towards environment, may be an opportunity to reduce this difference in older children and adults.

In connection with this difference between male and female attitudes to the environment, Agenda 21 (UNESCO, 1992), a report that addressed major environmental issues of today's world, regarded females as the target group to be supported in relation to environmental issues due to their role in bringing up young children who can adopt ecocentric environmental attitudes. This further supports the need to investigate the gender factor in relation to the attitudes of younger and older children.

## **Conclusion**

According to the results of this research, although not apparent initially, preschool children value nature and advocate the protection of environment in order to maintain and enhance their own lives for most of the environmental issues presented in this study. In line with Piagetian theory, which claims that children are dominated by egocentrism in their early years, educators and others involved in child care can help young children feel part of nature, thus beginning the process of developing the

child's ecocentric attitudes towards nature. For this reason, environmental issues should be integrated into the existing early childhood education programmes and should include both indoor and outdoor activities. In particular, in early childhood education settings, the outdoor area must not be disregarded like the classroom, it should be equipped with proper environmental education materials, environment corners, etc. in order to assist children in connecting with and feeling part of the natural world.

In today's educational system, some countries have already developed their own early childhood curriculum that includes programs and activities which enhance children's environmental understandings from the early years. For instance, in Germany, in addition to all early childhood education institutions and curricula, 'Natur- und Waldkindergarten' (Nature and Forest kindergarten) schools specifically aim to support the development of preschool children's understanding of the environment and provide a variety of opportunities for a healthy interaction with the natural environment and its elements. In these kindergartens, children can spend 3–4 hours outdoors walking and investigating nature. In this way, they learn to respect nature and its elements as well as develop ecocentric attitudes towards the environment (Akçay, 2006). Moreover, in the USA, Sweden and Japan early childhood education curricula, environmental issues are integrated into the early childhood education and children are guided to have experiences with environmental issues in both indoor and outdoor settings (Akçay, 2006). In Turkey, however, at the level of early childhood education, there are no structured environmental education programmes. Although the National Early Childhood Education Program (Milli Eğitim Bakanlığı, 2006) aims to provide an appropriate baseline for environmental education programs in the preschool years, hands-on educational implementations in preschool classrooms need to be enriched and generalized (Gulay & Ekici, 2010).

From this perspective, there are other recommendations which can enrich educators' knowledge concerning early childhood environmental education. First and foremost, the evaluation of preschool children's environmental attitudes and the underlying reasons for these attitudes is important; however, extensive relevant literature does not exist. For that reason, repeated studies should be conducted with different samples of preschool children investigating the effects of a range of variables through both qualitative and quantitative methods. For example, a child's attitudes towards environmental issues may be affected by their family's behaviour; therefore, in future studies, families can be included in research design. Moreover, as mentioned above, the opportunity to interact with the natural environment can help young children develop ecocentric attitudes. Thus, further studies can examine the exposure of preschool children to various activities in outdoor settings and the impact on their ecocentric attitudes. In addition, the role of preschool teachers and their classroom practice in encouraging their young students to become ecocentric individuals can be included in or be the subject of research. The educational background and in-service training experience of early childhood education teachers in relation to the attitudes and classroom practice concerning environmental issues is also worth investigating.

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