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# Comparison of environmental attitudes and experiences of five-year-old children receiving preschool education in the village and city centre

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## ABSTRACT

The purpose of the study is to compare environmental attitudes and experiences of five-year-old children receiving preschool education in the village and city centre. The first group comprised 54 five-year-old children who received preschool education and attended kindergartens of two primary schools in the Karateke and Kocabaş villages of Honaz district in Denizli province, Turkey. The second sample group comprised 50 children receiving education in an independent kindergarten in Merkezefendi district of Denizli province. As data collection tools, Attitude towards Environment Scale and questionnaire of Environmental Experience were used in the study. According to results, environmental attitudes of preschool children living in the village showed a significant difference in favour of children living in the city centre. Examining in terms of gender, it was observed that environmental attitudes of children in both groups did not show a significant difference based on gender.

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Preschool children;  
environmental attitude; city–  
village; urbanisation

## Introduction

The damage done to nature by today's mankind has reached an extraordinary level. Anthropogenic activities may destroy forests, dry out rivers, pollute water resources and considerably damage biological wealth. As a result of these negative developments in the environment, global warming and climatic changes are observed today. In addition, hazards such as soil erosion, toxic wastes and acid rain threaten the humankind, plants, and animals on earth. Under these circumstances, scientists underline that the anthropocentric point of view that has been lasting for centuries should be relinquished and an environment-centred point of view should be adopted (Özdağ, 2014).

Researchers point out that environmental knowledge, environmental awareness and environmental attitude start to be shaped from early ages and the environmental awareness to be gained through children's interactions with nature also plays an important role in developing a positive environmental attitude in later years (Smith, 2001; Taşkın & Şahin, 2008). Additionally, interacting directly with environment and gaining experiences in the first years of life increase children's interests towards the environment (Vadala, Bixler, & James, 2007). Wilson (1996) indicates that in the later years it is more difficult to correct the negative attitudes gained in the first years of life towards the environment. Therefore, we need to introduce our children to natural environment in early ages. This is because a child who learns to love the world in early ages will grow up as an individual who protects

their environment (Gordon, 2014). Otherwise, children would grow away from the nature day by day, depending on technological developments. For children who grow away from the nature, natural environment would cease to be a playground and playing in the natural environment would be replaced by technological playing materials. Hence, our children would start spending less time in nature. A child whose interaction with the nature has decreased would not recognise the order, harmony and beauty in the nature. A child who is not interested in plants and animals would have consequently difficulty in feeling affection and sympathy towards these creatures, and more importantly a child who cannot interact with the nature will have difficulty in gaining the sense of responsibility towards the protection of the environment.

Under today's conditions, relations between children and environment gradually decrease and this induces children to lead lives that are isolated from the environment (Gülay & Önder, 2011). Natural experiences of children who spend less and less time in nature gradually become poorer and therefore their physical and psychological senses become blunt (Louv, 2012). Avoiding this situation and ensuring that our children value the environment we live in seem only possible through the environmental education provided in early ages. This is because environmental education ensures a way to understand the relationship between mankind and the environment he lives in (Sabo, 2010). As Davis (1998) points out, environmental education is important in terms of providing people with a way of thinking and behaving. Individuals who are effective in the emergence of environmental problems should receive a life-long, efficient and detailed environmental education in order to develop awareness to understand their responsibilities for the elimination of these problems and gain an environmentally conscious and environmentally friendly point of view and lifestyle (Çolakoğlu, 2010). If children can observe, interpret, and judge the changes happening in the natural and social environments, they become integrated with their environments and recognise the elements and incidences in the nature (Atasoy, 2015). In addition, children who interact with and know the environment and develop awareness towards the environment in the early years of life will become a more conscious generation in the future (Gülay, 2011a). This is because the nature supports children's creativity by providing them with the opportunity to fully use their visual imagination and emotions and also ensures a sense of tranquility, which is different and distant from the adults' world, for children (Louv, 2012). However, as the experiences of children who live in the city centres and rural areas differ, it does not seem possible to talk about a common perception of environment.

In the literature in the study of Kesicioğlu and Alisinanoğlu (2009) they analysed the attitudes of 60–72-month-old children living in the city centres, city-farms and villages towards the environment and revealed that the attitudes of children living in the city centre towards living in nature and natural events, the attitudes of children living in city-farms towards natural factors and environmental attitude scores of children living in the village were the highest. On the other hand, Cohen and Horn Wingerd (1993) specified that the children who lived in rural areas had higher levels of environmental awareness and attitudes compared to the children who live in the city centres. In the study of Tuncer, Sungur, Tekkaya, and Ertepinar (2004), they examined the environmental attitudes of sixth grade students who lived in urban and rural areas of Ankara and they reported a significant difference in favour of the attitudes of students who lived in rural areas between environmental attitudes of students who lived in urban and rural areas. Wells and Ivans (2003) pointed out that the stress levels of children who lived in the city centres were higher than the stress levels of those who lived in natural environments. In a study conducted by Yilmaz, Boone, and Andersen (2004), they came to a more different conclusion compared to other studies as they revealed that the primary school students who lived in the city centre had more positive attitudes towards the environment compared to those who lived in rural areas. In their study Zengin and Kunt (2013) endeavoured determining the attitudes of secondary school students through the scale of attitudes towards trees and environment; they reported that those who lived in the villages and towns had higher levels of attitudes compared to those who lived in the city centres and female students had higher attitudes towards trees and environment than male students. When the literature is reviewed, it can be asserted that the location where children reside is an important variable determining their attitudes towards the environment.

In the literature, there are studies which point out that the attitudes of children towards the environment vary depending on not only their residences but also their genders (Davidson & Freudenberg, 1996; Paraskevopoulos, Korfiatis, & Pantis, 2003; Taycı & Uysal, 2012; Tikka, Kuitunen, & Tynys, 2000; Zengin & Kunt, 2013). In the study conducted by Gökçe, Kaya, Aktay, and Özden (2007) with primary school students, they emphasised that female students had higher levels of environmental attitudes than male students. In the study of Erkul and Uğurlu (2013), they analysed whether the environmental attitudes of secondary school students varied according to the gender factor or not, and reported a significant difference in favour of male students. In the study of Aslan, Uluçınar Sağır, and Cansaran (2008), they stated that the environmental attitudes of primary school students did not vary based on gender.

When studies conducted on environment in the literature are analysed, it is seen that there are studies examining the environmental attitudes and awareness of adults and especially children in primary school ages (Alp, Ertepinar, Tekkaya, & Yılmaz, 2006; Atasoy, 2005; Kilbourne, Beckmann, Lewis, & Dam, 2001; Uljas, 2001; Yılmaz et al., 2004). However, the number of studies that analyse the environmental attitudes of children who live in the city centre and rural areas and continue their preschool education in these areas is limited. It is thought that this study would contribute to the literature by evaluating the environmental attitudes of preschool children who live in the city centres and rural areas. In this context, the purpose of this study is specified to compare the environmental attitudes and experiences of five-year-old children who receive preschool education in the city centre and village. Subgoals of the study have been specified as follows:

- Is there a statistically significant difference between the environmental attitudes of five-year-old children who receive preschool education in the city centre and village?
- Is there a statistically significant difference between the environmental attitudes of five-year-old children who receive preschool education in the city centre and village according to gender?
- What kind of experiences do five-year-old children, who receive preschool education in the city centre and village, have with relation to animals?
- What kind of experiences do five-year-old children, who receive preschool education in the city centre and village, have with relation to plants?

## Method

### *Sample group*

The study had two sample groups. In the first group, there were 54 children who attended the kindergartens of two primary schools in the villages of Karateke and Kocabaş in the district of Honaz in the province of Denizli, Turkey. While 28 of these children (51.9%) were girls, 26 (48.1%) were boys. It was determined that 1 of the mothers (1.9%) was illiterate, 1 (1.9%) was literate, 36 (66.7%) were primary school graduates, 8 (14.8%) were secondary school graduates, 5 (1.1%) were high school graduates and 3 (5.6%) were university graduates. On the other hand, 1 of the fathers (1.9%) was literate, 30 (55.6%) were primary school graduates, 11 (20.4%) were secondary school graduates, 8 (14.8%) were high school graduates and 4 (7.4%) were university graduates.

In the second sample group, there were 50 children who attended a private kindergarten in the district of Merkezefendi in the province of Denizli, Turkey. While 21 of the children (42.0%) were girls, 29 (58.0%) were boys. It was determined that 7 of mothers (14.3%) were primary school graduates, 4 (8.2%) were secondary school graduates, 12 (24.5%) were high school graduates and 27 (53.1%) were university graduates. On the other hand, 6 of the fathers (12.0%) were primary school graduates, 4 (8.0%) were secondary school graduates, 10 (20.0%) were high school graduates and 30 (60.0%) were university graduates.

All children in both groups exhibited normal development qualities and were living with their parents.

## **Data collection tools**

### **Personal information form**

On this form, there are questions related to various demographic characteristics of children such as gender and parents' educational status.

### **The children's attitudes towards the environment scale – preschool version**

The Children's Attitudes towards the Environment Scale-Preschool Version (CATES-PV) is derived from the Children's Attitudes towards the Environment Scale for School-Age Children (CATES). Musser and Diamond (1999) developed CATES-PV for preschool students. In the CATES-PV, 15 of the 25 questions are from CATES. Musser and Diamond decided that 10 of the 25 items in CATES for School-Age Children were inappropriate for small children and established the CATES-PV with the 15 remaining items (Musser & Diamond, 1999).

For each item on the CATES-PV, children are presented with a line drawing depicting a specific environmental issue, and the associated item is read to them. As with the CATES, children must choose which child or children they are most similar to. They then indicate, by pointing to a large or small circle, whether they are a lot or just a little similar to that child or children. Every item on the scale is scored between 1 and 4. This measurement tool has no sub-scales and total scores are calculated. The highest and lowest scores of the scale are 60 and 15, respectively. The total score obtained from the scale indicates the high level of pro-environmental behaviour. The scale is applied to children individually. CATES-PV is a scale developed for children between the ages of 4 and 6 years. However, in this study, reliability–validity studies were performed for children aged between 5 and 6 years (Musser & Diamond, 1999). In 2008, Gülay carried out linguistic equivalence, reliability, and validity studies for the scale (Gülay, 2011b).

### **Environmental experience questionnaire**

In the questionnaire which was developed by the researchers for this study, there are questions aiming to determine the environmental experiences of five-year-old children with regard to animals and plants. Expert opinions were received from six academicians who work relating to environmental education in the fields of preschool education, child development and scientific education with regard to the questions prepared according to the literature review while creating the questionnaire. The questionnaire took its final shape in line with the expert opinions. In this questionnaire, there are 12 open-ended questions concerning the experiences related to animals and plants. With regard to animals, children were asked if they kept any pet at home and outside home; if they did what kind of pets they kept; if their house has a garden; and the animals they most frequently saw in the garden and environment. With regard to plants, children were asked about the plants they saw in their gardens; if they ever planted a sapling; if they did where they planted the sapling, and the species of plants and trees they most frequently saw in their surroundings.

### **Process**

Two assessment instruments used within the study were applied in face-to-face interviews held with children in a place away from the classroom environment. All children were applied the Attitudes towards the Environment Scale at first and then the Environmental Experience Questionnaire. The implementation took on average 15–20 minutes for the Attitudes towards the Environment Scale and 15 minutes for the Environmental Experience Questionnaire for each child. The responses given to the Attitudes towards the Environment Scale were marked on the answer sheet of the form. The responses given to the Environmental Experience Questionnaire were written down.

## Data analysis

According to the results of the Kolmogorov Smirnov Test, the scores received by the children from the Attitudes towards the Environment Scale demonstrated a normal distribution ( $K_s(Z) = 1.151; p > .05$ ). In parallel with the normal distribution, one-way analysis of variance (ANOVA) was used in order to determine if their environmental attitude scores varied based on city and village residence and gender variables, and independent samples  $t$  test analyses were conducted. Frequency and percentage distributions were used in order to reveal children's environmental experiences with animals and plants.

## Results

As given in Tables 1 and 2, a statistically significant difference was found in the environmental attitudes of five-year-old children who received preschool education in the village and city centre ( $F(1-102) = 6.415, p < .005$ ). The environmental attitude levels of five-year-old children who lived in the city centre ( $\bar{x} = 49.28$ ) were higher than children who lived in the village ( $\bar{x} = 46.11$ ) ( $p < .005$ ).

According to Table 3, there was no significant difference between the environmental attitudes of the five-year-old children who lived in the village ( $t = .637, p > .005$ ) and in the city centre ( $t = -.784, p > .005$ ) according to their genders.

When Table 4 was analysed, it was observed that 59.3% of children who lived in the village and 50% of children who lived in the city centre specified that they kept animals outside of their houses. When the distributions of the animals kept outside of the house were examined, it was found that 32 children who lived in the village and keep animals outside of their houses indicated that they kept nine different species of animals. While the most commonly mentioned one among animals kept outside of the house by the children who lived in the village was sheep, the least commonly mentioned animal was mouse. Children who lived in the city centre mentioned eight different species of animals. While the most common animal kept outside of the house by the children who lived in the city centre was cat, the least commonly mentioned animals were rabbit, sheep, chicken, and bee.

While 55.6% of children who lived in the village stated that they kept animals at home, this rate was 30% among the children who lived in the city centre. In terms of the animals kept at home, children who lived in the village mentioned 12 different species of animals; whereas, those who lived in the city centre mentioned five different species of animals. While the most commonly kept animal at home by the children who lived in the village was sheep, it was fish by those who lived in the city centre. The least commonly kept animals by the children who lived in the village were insects, turkey, and mouse. The least commonly kept animals by the children who lived in the city centre were turtle and bee.

While 83% of children who lived in the village had houses with gardens, 72% of those who lived in the city centre did not have houses with gardens. In the distributions of the animals seen by children in the garden, it was determined that the five-year-old children who lived in the village saw 17 species of animals, whereas those who lived in the city centre saw 12 species of animals. The most commonly seen animal by the children, who lived in the village, in the garden was dog, and the least commonly seen ones were monkey, butterfly, snail, and turkey. The most commonly seen animal by the children, who lived in the city centre, in the garden was cat, whereas the least commonly seen animals were ant, spider, chick, cow, frog, turtle, bee, and fly.

**Table 1.** Descriptive statistics related to the environmental attitudes of five-year-old children receiving preschool education in the village and city centre.

Location of children's residences	<i>N</i>	$\bar{x}$	Std. Dev.	Std. Er.
Village	54	46.11	7.61	1.04
City Centre	50	49.28	4.69	.66
Total	104	47.63	6.54	.64

**Table 2.** Results of one-way analysis of variance with relation to the environmental attitudes of five-year-old children receiving preschool education in the village and city centre.

Source of variance	Sum of squares	SD	Mean of squares	F	p
Intergroup	260.702	1	260.702	6.415	.013
Intragroup	4145.413	102	40.641		
Total	4406.115	103			

**Table 3.** Results of independent samples *t* test conducted concerning environmental attitudes of five-year-old children receiving preschool education in the village and city centre according to their genders.

Environmental attitude	Gender	N	$\bar{x}$	ss	Sh $\bar{x}$	t test		
						t	SD	p
Children who lived in the village	Female	28	46.75	6.10	1.15	.637	52	.527
	Male	26	45.42	9.04	1.77			
Children who lived in the city centre	Female	21	48.67	5.55	1.21	-.784	48	.437
	Male	29	49.72	3.99	.75			

In the distributions of the most commonly seen animals by the children in their surroundings in addition to their gardens; while children who lived in the village mentioned 23 animal names, those who lived in the city centre mentioned 16 animal names. Children who lived in the village saw most commonly cat in their surroundings, whereas they saw least commonly squirrel, spider, fish, bee, ant, marten, lamb, mouse, stork, frog, turkey, and duck. Children who lived in the city centre saw most commonly dog in their surroundings, whereas they saw least commonly sheep, chicken, bee, cow, rooster, lamb, frog, horse, chick, mole, and fly.

When children's experiences with relation to plants in Table 5 were examined, it was observed that children who lived in the village stated that they saw nine species of plants in the gardens of their houses, whereas children who lived in the city centre stated that they saw five species of plants. While 57.4% of children who lived in the village planted at least one sapling, 42% of those who lived in the city centre planted at least one sapling. The most common place to plant sapling among the children living in the village was their gardens. Children who planted saplings among those living in the city centre did not specify where they planted the saplings. While children living in the village stated that they saw 14 species of trees in their surroundings, those who lived in the city centre saw 13 species of trees. Those living in the village saw most commonly apple trees, whereas the least commonly seen trees were pomegranate, orange, tangerine, fig, and quince trees. Children living in the city centre saw most commonly pine trees, whereas they saw least commonly plum, quince, plane, and poplar trees. While those who lived in the village stated that they saw 18 species of plants in their surroundings, those living in the city centre specified 14 species of plants. In terms of the plant species they saw in their surroundings, children who lived in the village and city centre stated that they saw most commonly flowers. Those who lived in the village saw least commonly parsley, cucumber, potato, grape, plum, cherry, leek, carrot, pepper, and lime tree, whereas those who lived in the city centre saw least commonly parsley, cucumber, carrot, clover, cactus, apple, pear, watermelon, and strawberry.

## Discussion

According to the results of the study, the environmental attitudes of preschool children who lived in the city centre and village significantly varied in favour of the children who lived in the city centre. According to this result, it could be asserted that children who lived in the city centre had higher levels of positive attitudes towards the environment compared to their peers who lived in the village. In the literature, there is a study that does not show parallelism with the result of this study. In the study conducted by Kesicioğlu and Alisinanoğlu (2009), environmental

**Table 4.** Distributions of the experiences of five-year-old children, receiving preschool education in the village and city centre, with relation to animals.

Environmental experiences related to animals and sources to obtain experiences	Children who lived in the village		Children who lived in the city centre	
	<i>f</i>	%	<i>f</i>	%
<i>Keeping pets outside of home</i>				
Yes	32	59.3	25	50.0
No	22	40.7	25	50.0
Total	54	100.0	50	100.0
<i>Animals kept outside of home</i>				
Cow	6	16.6	0	0
Cat	5	13.9	9	32.1
Dog	5	13.9	5	17.9
Rabbit	3	8.3	1	3.6
Goat	2	5.6	0	0.0
Sheep	9	25.0	1	3.6
Chicken	3	8.3	1	3.6
Mouse	1	2.8	0	0
Bird	2	5.6	8	28.6
Fish	0	0.0	2	7.1
Bee	0	0.0	1	3.6
Total	36	100.0	28	100.0
<i>Keeping pets at home</i>				
Yes	30	55.6	15	30.0
No	24	44.4	35	70.0
Total	54	100.0	50	100.0
<i>Animals kept at home</i>				
Goat	4	11.1	0	0.0
Lamb	3	8.3	0	0.0
Insect	1	2.8	0	0.0
Sheep	7	19.4	0	0.0
Cat	3	8.3	0	0.0
Dog	4	11.1	4	23.5
Chicken	4	11.1	0	0.0
Mouse	1	2.8	0	0.0
Bird	2	5.6	4	23.5
Cow	4	11.1	0	0.0
Rabbit	2	5.6	0	0.0
Turkey	1	2.8	0	0.0
Turtle	0	0.0	2	11.8
Fish	0	0.0	6	35.3
Bee	0	0.0	1	5.9
Total	36	100.0	17	100.0
<i>Having a house with garden</i>				
Yes, there is a garden	44	83.0	36	72.0
No, there is not a garden	9	17.0	14	28.0
Total	53	100.0	50	100.0
<i>Animals seen in the garden</i>				
Dog	13	21.4	11	26.2
Cat	10	16.4	18	42.9
Sheep	8	13.1	0	0.0
Rabbit	3	4.9	2	4.8
Monkey	1	1.6	0	0.0
Worm	2	3.3	0	0.0
Ant	2	3.3	1	2.3
Butterfly	1	1.6	0	0.0
Spider	2	3.3	1	2.9
Chicken	6	9.8	0	0.0
Chick	2	3.3	1	2.3
Cow	2	3.3	1	2.3
Rooster	3	4.9	0	0.0
Bird	2	3.3	3	7.1
Lamb	2	3.3	0	0.0
Snail	1	1.6	0	0.0

(Continued)



**Table 4.** Continued.

Environmental experiences related to animals and sources to obtain experiences	Children who lived in the village		Children who lived in the city centre	
	<i>f</i>	%	<i>f</i>	%
Turkey	1	1.6	0	0.0
Frog	0	0.0	1	2.3
Turtle	0	0.0	1	2.3
Bee	0	0.0	1	2.3
Fly	0	0.0	1	2.3
Total	61	100.0	42	100.0
<i>Most frequently seen animals in their surrounding</i>				
Insect	3	2.4	0	0.0
Cat	32	25.4	37	33.3
Dog	31	24.5	41	40.0
Goat	4	3.2	0	0.0
Sheep	14	11.1	1	0.9
Rabbit	6	4.8	5	4.5
Squirrel	1	0.8	0	0.0
Spider	1	0.8	0	0.0
Butterfly	2	1.6	0	0.0
Fish	1	0.8	3	2.7
Chicken	6	4.8	1	0.9
Bee	1	0.8	1	0.9
Cow	6	4.8	1	0.9
Rooster	5	4.0	1	0.9
Ant	1	0.8	0	0.0
Bird	5	4.0	14	12.6
Marten	1	0.8	0	0.0
Lamb	1	0.8	1	0.9
Mouse	1	0.8	0	0.0
Stork	1	0.8	0	0.0
Frog	1	0.8	1	0.9
Turkey	1	0.8	0	0.0
Duck	1	0.8	0	0.0
Horse	0	0	1	0.9
Chick	0	0	1	0.9
Mole	0	0	1	0.9
Fly	0	0	1	0.9
Total	126	100.0	111	100.0

attitudes of 60–72-month-old children were examined in terms of different variables. According to the results of the study, children's environmental attitudes varied according to the place they resided in. In their study; Grodzinska-Jurczak, Stepska, Niezsporek, and Bryda (2006) reported that socio-economic level was not effective on the environmental behaviours of six-year-old children; however, the place of residence (village, city) may be effective. In this study, it could be thought that the difference between the environmental attitudes may be arising from the educational levels of parents of children who lived in the city centre and the preschool education they received. Educational levels of parents of children who lived in the city centre were higher than those who lived in the village (see Method). In parallel with parents' educational levels, effective use of energy resources by children may make us think that they are more frequently informed on environmental protection. When studies conducted on the effect of educational level on the environmental attitude were analysed, it was observed that as educational level increased, the positive attitude towards the environment also increased as well (Sam, Gürsakil, & Sam, 2010). In the study conducted by Sam et al., environmental awareness was reported to increase with higher class levels among university students (2010). In the same study conducted by Sam et al. (2010), they reported that the environmental attitudes of university students may be affected by the educational levels of their mothers. In a similar study conducted by Ek, Kılıç, Ögdüm, Düzgün, and Şeker (2009), it was reported that the environmental attitudes of first year and final-year bachelor's degree-level students showed difference in favour of final-year students

**Table 5.** Distributions of the experiences of five-year-old children, receiving preschool education in the village and city centre, with relation to plants.

Environmental experiences related to plants and sources to obtain experiences	Children who lived in the village		Children who lived in city centre	
	<i>f</i>	%	<i>f</i>	%
<i>Plants seen in the garden of the house</i>				
Grass	13	28.3	12	26.1
Tree	7	15.2	16	34.8
Flower	17	36.9	14	30.4
Tomato	2	4.3	0	0.0
Pepper	2	4.3	0	0.0
Spinach	1	2.8	0	0.0
Lettuce	2	4.3	0	0.0
Cucumber	1	2.8	0	0.0
Strawberry	1	2.8	2	4.3
Onion	0	0.0	2	4.3
Total	46	100.0	46	100.0
<i>Planting saplings</i>				
I planted a sapling	31	57.4	21	42.0
I did not plant a sapling	23	42.6	29	58.0
Total	54	100.0	50	100.0
<i>Where they planted a sapling</i>				
In the field	5	16.1	0	0.0
In the garden	25	80.7	0	0.0
At school	1	3.2	0	0.0
Total	31	100.0	0	0.0
<i>Most commonly seen trees in their surroundings</i>				
Pine tree	9	15.7	21	35.0
Japanese persimmon	3	5.3	0	0.0
Pomegranate	1	1.8	0	0.0
Olive	4	7.0	5	8.3
Walnut tree	6	10.5	0	0.0
Apple tree	18	31.6	13	21.7
Orange tree	1	1.8	6	10.0
Tangerine tree	1	1.8	2	3.3
Fig tree	1	1.8	2	3.3
Plum tree	5	8.7	1	1.7
Peach tree	1	1.8	2	3.3
Cherry tree	3	5.3	0	0.0
Apricot tree	3	5.3	0	0.0
Lemon tree	0	0.0	2	3.3
Quince tree	1	1.8	1	1.7
Plane tree	0	0.0	1	1.7
Pear tree	0	0.0	3	5.0
Poplar tree	0	0.0	1	1.7
Total	57	100.0	60	100.0
<i>Most commonly seen plants in their surroundings</i>				
Grass	11	15.7	17	28.2
Flower	33	47.1	26	43.2
Parsley	1	1.4	1	1.7
Lettuce	2	2.9	0	0.0
Cucumber	1	1.4	1	1.7
Tomato	3	4.3	4	6.7
Potato	1	1.4	0	0.0
Onion	3	4.3	0	0.0
Trees	4	5.7	0	0.0
Bean	2	2.9	2	3.3
Grape	1	1.4	0	0.0
Plum	1	1.4	0	0.0
Cherry	1	1.4	0	0.0
Spinach	2	2.9	0	0.0
Leek	1	1.4	0	0.0
Carrot	1	1.4	1	1.7
Pepper	1	1.4	2	3.3

(Continued)

**Table 5.** Continued.

Environmental experiences related to plants and sources to obtain experiences	Children who lived in the village		Children who lived in city centre	
	<i>f</i>	%	<i>f</i>	%
Lime	1	1.4	0	0.0
Clover	0	0.0	1	1.7
Cactus	0	0.0	1	1.7
Apple	0	0.0	1	1.7
Pear	0	0.0	1	1.7
Watermelon	0	0.0	1	1.7
Strawberry	0	0.0	1	1.7
Total	70	100.0	60	100.0

(Ek et al., 2009). Parents with higher educational levels can inform their children about environment. The environmental attitudes of children who lived in the village and city centre may be considered to have been affected by both the preschool education they received and the social conditions of where they lived. More diverse social conditions at city centre compared to village may enable preschool education teachers with the opportunities to prepare more different environmental activities. For instance, there are many institutions in the city centre of Denizli to organise environmental education trips, such as Air Pollution Measurement Station, Pamukkale University Environmental Laboratory, PAU Clean Energy House, Earthquake and Soil Laboratory, Denizli Regional Directorate of Forestry Plantation Facility, Kartlısan Recycling Plant, Denizli Municipality Waste Water Treatment, and Integrated Solid Waste Plant and paper factory. It seems more probable to transport to these institutions from schools located in the city centre of Denizli, to stay in contact with these institutions, visit these institutions or organise common activities with them especially in terms of transportation compared to the schools located in the village. It is thought that these conditions provide opportunities to help the children in the city centre to develop positive environmental attitudes.

In terms of gender, environmental attitudes of children in two groups did not show a significant difference based on gender. There are different results on this subject in the literature. For instance, in their study, Kesicioğlu and Alisinanoğlu (2009) reported that the environmental attitudes of 60–72-month-old children showed difference according to their genders. It was reported that boys had more positive attitudes towards natural elements compared to girls. In parallel with the results of this study; Gülay (2011b) also stated in her study conducted with 171 children in the age group of 5–6 years that the environmental attitudes of children did not show difference in terms of their genders. In the study of Özdemir and Uzun (2006) in which they analysed the effect of activities related to science and nature on the environmental perceptions of preschool children, they stated that the environmental perception does not differ according to gender. The fact that there was no difference in environmental attitudes of children in term of gender makes us think that more effective, different variables (parents' educational levels, socio-economic level, preschool education's quality, etc.) may be effective in environmental attitudes rather than gender. Different results have also been obtained from studies which examine the environmental attitudes of children in older age groups according to gender. For instance, in the study of Alp et al. (2006) female students in 6th, 8th and 10th grades had more positive environmental attitudes than male students, whereas no differences was found between genders in terms of environmental knowledge. In the study conducted by Teyfur (2008), no difference was determined between environmental attitudes of fourth and seventh-grade students in terms of gender.

When results were examined in terms of environmental experience, a great majority of children who lived in the village kept animals outside of their homes at least once. Half of the children living in the city centre kept animals outside of their homes. Although these rates were close to each other, the rate of children who lived in the village and kept animals outside of their

homes was higher. In addition, children who lived in the village kept more different kinds of animals compared to those living in the city centre. In terms of having pets at home, the rate of children who lived in the village and had pets was higher than their peers who lived in the city centre. In terms of the species of animals, those who lived in the village kept more different species of animals in their houses. The rate of children who lived in houses with gardens was found to be higher among those who lived in the village. Similarly, children who lived in the village saw more species of animals in their gardens and surroundings than those who lived in the city centre. Concerning their experiences with plants, once again results turned out to be in favour of those who lived in the village. Children who lived in the village mentioned more species of plants that they saw in their surroundings than those who lived in the cities. Children who lived in the village planted more saplings than those who lived in the city centre. Children who lived in the village most frequently planted saplings in the gardens of their own houses. Children who planted saplings among those who lived in the city centre did not specify where they planted the saplings. In addition, children who lived in the village mentioned more plant and tree species than those who lived in the city centre. As is seen, it could be asserted that the experiences of children who lived in the village with regard to animals and plants were higher compared to children who lived in the city centre. The fact that children lived in houses with gardens could be thought to help them gain more experiences with animals and plants. By means of a garden, they may observe adults feeding animals and growing plants, directly participate in the process, and have the chance to learn by doing and experiencing. The rates of children who lived in houses with gardens in the village were higher than the rates of children who lived in the city centre, which may be assessed as an expected consequence within phenomenon of urbanisation. Multi-storey apartments and less green areas attract the attention in cities rather than single-storey houses with garden (Ceritli, 1995). It could be thought that the presence of many green areas in the surrounding and living in a house with a garden may lead to interact with many more species of plants and animals. It was pointed out in results that a great majority of children who lived in the village planted saplings in their gardens, whereas those living in the city centre did not respond to this question. This result may be explained by the assumption that due to the limited number of green areas, children living in the city centre plant saplings in more distant locations on certain dates and in certain weeks, such as the Forestry Week. Children may be unable to remember where they planted trees, as they did not plant them in their close surroundings. The high number of green areas in surroundings, the diversity of animal and plant species, and the important places that animals and plants have within the daily life in a village were thought to increase the experiences of five-year-olds living in villages with animals and plants. Results of the study revealed the importance of increasing the environmental experiences of children living in the city centre and pointing out the positive environmental attitudes of children living in the village. In the childhood period, along with the motive of curiosity towards one's surroundings, environmental attitudes also start to emerge (Lyons & Breakwell, 1994). It is necessary to keep the interests of preschool children towards the environment alive through games played, observations made and time spent with various activities in natural environment. In this way, they can be supported to know and love their environments and develop positive attitudes towards their environments. In the first years of life, children learn through direct interaction and observation (Trevarthen, 1997). In addition to getting to know the environmental factors (animals, plants, etc.), it is also important for children to develop positive environmental attitudes for environmental awareness such as environment protection or energy saving. Positive environmental attitudes and environmental knowledge may not always develop simultaneously (Makki, Abd-El-Khalick, & Boujaoude, 2003). Therefore, children should be able to develop a point of view to protect environmental factors in addition to spending time with these factors. In order to increase environmental attitudes and knowledge in children, guidance is required in order to increase green areas, plant and animal diversity, and the knowledge levels of children with regard to these areas.

## Conclusion and recommendations

According to the results of this study in which the environmental attitudes and experiences of five-year-old children living in the city centre and village were examined, the environmental attitudes of children who lived in the city centre had higher levels than those of children who lived in the village, whereas the environmental experience levels of children living in the village were higher than those of children who lived in the cities. It was found that gender was not a significant variable in determining the environmental attitudes of preschool children living in the village and city centre. According to the results, environmental experiences of children living in the city centre should be increased, while supportive activities should be held for the positive environmental attitudes of children living in the village. The study is limited with 104 children in the city of Denizli. Future studies can be planned in different cities with more crowded sample groups. Children's environmental attitudes and experiences were determined through personal interviews. In future studies, children's attitudes and experiences can be determined through different sources such as observation, and the opinions of teachers and parents. In this study, children's experiences are limited with keeping animals at home and outside of home, having houses with gardens, planting saplings, remembering where they planted saplings, and the species of plants and trees they saw in their gardens and their surroundings. In following studies, it may be aimed to reveal more different experiences of children (plants they have grown, etc.) and their environmental knowledge (recognising the species of plants, trees and animals in pictures, reciting certain qualities of plants and animals, etc.). Environmental education programmes may be implemented for young children living in the city centre and village, and their results may be compared. Effects of variables such as parents' educational levels, ages, professions and number of siblings on environmental attitudes may be investigated. Studies revealing the practice level and practice method of educational education may be planned in preschool education institutions in villages. Preschool education teachers working in the village and city centre may be provided with in-service training as how to plan environmental education in accordance with the geographical characteristics of the region they work at. Environmental attitudes, experiences and knowledge of young children who received or did not receive preschool education and who live in the village and city centre may be compared to each other. Studies revealing what parents achieve in order to develop an environmental attitude in their children and what problems are with regard to this subject may be planned. Longitudinal studies in which young children's environmental attitudes, knowledge and experiences are followed may be conducted. Assessment instruments revealing the environmental knowledge and experiences of preschool children may be developed. Green areas where especially children living in cities may utilise and spend more time should be created. Green areas should be increased in preschool education institutions, certain regulations (zoo, field, landscaping, etc.) should be made to ensure that children obtain experiences with plants and animals in these areas and they should be legally obligatory. Projects and education programmes aiming to increase environmental knowledge and awareness among children, parents and teachers should be formed through the cooperation of various institutions, such as non-governmental organisations, universities, the Ministry of National Education and municipalities, and these programmes should be extended.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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