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Changing Preschool Children's Attitudes into Behavior towards Selected Environmental Issues: An Action Research Study

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Abstract

The purpose of this study is to provide the transform of attitudes into behavior of 60-72 month of age children continued early childhood education toward environmental issues. Collaborative action research method of qualitative design was used. The whole participants of the study were 60-72 months of age children who were attending in an early childhood education center supervised by Ministry of National Education in Kartal District, in Istanbul. The data source of this study is the face to face interviews with 14 preschool children. In addition to the interviews with children, the teacher's reports were used. Besides, in the research, it was seen that children generally have ecocentric attitudes towards paper consumption, environmental protection, recycling and living habits especially in residence and transportation preferences. However, in observation report of classroom teacher, it was seen that they did not behave in an ecocentric manner. After the action plan applied, classroom teacher has indicated a difference in children's behavior.

Key words: Early childhood education, action research, environmental issues.

Introduction

In today's world, young children are already in a world where environmental damage, social injustice and appalling ill-health are major features of the global landscape and where future options for healthy, just and sustainable lives are already being foreclosed through current actions and lifestyles (Davis, 1998). Nowadays, children and teenagers spend less time in natural environments than the others who lived fifty years before (Orr, 2002). The reason of this situation is more building and less green areas. Rapid urbanization and decrease in green areas reduce the play grounds of the children (Turgut and Yılmaz, 2010). One of the most important purposes for society in order to equip children with the attitudes, values, knowledge and skills necessary to rethink and change current patterns of action and to secure healthy and sustainable futures for all. Environmental education is important and has a critical role for this (Davis, 1998; Gulay, 2011).

Environmental education based on life experiences should begin during the very earliest years of life. Such experiences play a critical role in shaping life-long attitudes, values, and patterns of behavior toward natural environments (Tilbury, 1994; Wilson, 1994). According to Wilson (1994), environmental education in early childhood years includes the development of a sense of wonder; appreciation for the beauty and mystery of the natural world; opportunities to experience the closeness to nature; and respect for other creatures and their living habits. It also includes the development of problem-solving skills and the development of interest and appreciation in the world around us. Therefore, early childhood educators should provide opportunities for children to experience enjoyable and fascinating activities with nature because these emotions support their developing knowledge, skills, and dispositions (NAAEE, 2010; Güler, 2009).

Environmental education should be seen as a lifelong process which may take place in a variety of different contexts. In a home-based setting children are usually exposed to the domestic aspects of life (for example; shopping, cooking, cleaning, gardening) while in the care of a significant adult. Centre-based contexts include long day care, occasional care, and seasonal preschool, extended hours preschool or, increasingly, composition of care and education components. In contrast to the home-based contexts, centre-based contexts have long been

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subject to MNE 2013 Early Childhood Education Programme in Turkey (EPA, 2003). This programme consists of many outcomes related to environmental issues. Such as; using the resources efficiently in order to maintain the life, being careful for the life of other creatures, protection and providing safe living areas to other creatures, recognizing to share the same living areas with other creatures, telling the reasons of natural beauties' protection, explaining what should be done in order to protect the natural beauties, taking responsibilities to protect them, telling the beautiful/disturbing situations around his/her environment, giving examples could be done about the environmental issues around him/her and regulating his/her environment in different ways (MEB, 2013).

Any discussion of the role of adults in early childhood education should include parents and professionals together and in collaboration. In order to enhance ideas and attitudes of children towards environmental issues in terms of different concepts such as consumption patterns, environmental protection, recycling and reusing and living habits can be integrated into early childhood education programme (Duncan, 2011; Prince, 2011). In the light of these, aim of this research is to change positive attitudes of children towards environmental issues into behavior.

In Turkey, in early childhood, environmental education is provided with MNE 2013 Early Childhood Education Programme as center based. In this programme, it is highlighted that teachers should consider the variety of acquisitions in the environmental and nature topics and also they should plan different activities related to these acquisitions in daily flow. On the quality of the environmental education given at early childhood period, implementations have an important role and very crucial performed by the teachers in order to develop positive attitude and behavior of them and children on the consumption patterns, environmental protection, recycling and reusing and living habits.

The purpose of this study is to provide the transform of attitudes into behavior of 60-72 month of age children continued early childhood education toward environmental issues. Throughout this purpose, it is sought the answers of the following questions:

- What are the attitudes of 60-72 month of age children toward environmental issues in terms of consumption patterns, environmental protection, recycling and reusing and living habits?
- What are the observations of the teacher about children's behaviors on environmental issues in terms of consumption patterns, environmental protection, recycling and reusing and living habits?

At the end of action research;

- Does the transform of attitudes into behavior of 72 month of age children continued early childhood education toward environmental issues be provided?

Method

In this study, action research method of qualitative design was used. Action research includes the stages of determination of the existing problem, finding solution, implementation of solution, evaluation, implementation of action to change the ideas of individual and implementation stages in the light of evaluation. Action research gives place to reflection of you, reflection based on collaboration, discussion and dialogs at every stage (Borgia-Schuller 1996). The action research is known as "teacher research" in literature because of the researcher role of the teacher in the process. Berg (2001) was grouped action research in three topics and these are "technical/scientific/action research", "implementation/reciprocal collaboration/discussion oriented action research" and "emancipator/developer/critical action research". Obtained data was analyzed descriptive method of qualitative research.

Design of the Study

In this study "technical/scientific/action research" was used. Within the scope, it was aimed to evaluate of environment education practices of the teacher and in the light of this evaluation, it was asked the teacher to implement a new approach, then the new approach was analyzed and evaluated in the guidance of the researchers having a command of literature. From this point of view, this research can be called as a collaborative action research With the purpose of evaluation of teacher's environmental education implementations, fourteen 60-72 months of age children were interviewed through a picture questionnaire with 15 questions and their attitudes toward environmental issues in terms of consumption patterns, environmental protection, recycling and reusing and living habits were deeply investigated. Interviews with children were transcribed and these transcribe reports composed data source of the study. The study utilized the qualitative

data analysis in order to grasp an in depth understanding of children's attitudes towards environmental issues. The attitudes were categorized based on the framework of egocentrism that values nature for its own sake and anthropocentrism that advocates protection of environment in order to maintain and enhance human life (Thompson and Barton, 1994). Before the action process; in addition to the interview results, researchers also examined teacher observation reports to have a decision about how the action will be planned according to children's needs.

The Participants

The whole participants of the study were 60-72 months of age children who were attending in an early childhood education center supervised by Ministry of National Education in Kartal District, in Istanbul. Participants of this study were selected based on the teacher's convenience to the researchers. All children in the study were attending to the same classroom seven boys; seven girls were included in the current study. Table 1 describes the participants of the study in terms of gender.

Table 1. Children's characteristics regarding gender

Children's gender	n
Female	7
Male	7
Total	14

Instruments and Data Collection

The data source of this study is the face to face interviews with 14 preschool children. The interview questionnaire (which was adapted by Kahriman in 2010 for children) and teacher reports were used to obtain the data about the children.

The interview questionnaire which was adapted by Kahriman (2010) in line with the questions in CATES-PV (The Children's Attitudes toward the Environment Scale-Preschool Version) (Musser & Malkus, 1994) and preschool children's developmental appropriateness was taken into consideration. The interview questionnaire consists of 15 main interview questions and related sub-questions and pictures related to each question. Kahriman (2010) indicates that through interview questions it was aimed to explore preschool children's attitudes toward environmental issues in terms of consumption patterns, environmental protection, reusing and recycling, and living habits as well as the reasons the defined attitudes towards environmental issues. Interview questions were presented in Appendices A.

Data Collection Procedure

Data collection protocol was realized by researchers. The class was chosen based on the teacher's convenience to researchers. Before data collection process, researchers and the teacher came together and discussed about the interview questions and pictures which were prepared for children. The teacher sent a note to parents to get permission for the study. Data collection process occurred in fall and spring semester of 2014. Interviews with children were conducted in a silent part of the class by the teacher during the free play time. One of the researchers attended the process with the teacher and observed whether the teacher does the interview properly during the first 5 interviews. Because other children are all busy in free play time, no interruptions were occurred during interviews. Children were informed about the interview process before interviews. Interview questions were asked in the same order and children were told express their ideas looking at the pictures shown. Each interview took approximately 35 minutes and interviews were audio-recorded and audio-typed verbatim. Each child was interviewed individually by face to face interview method. During the interviews, children are told that they could give up or took a break off if they got bored. In addition, teacher sometimes repeated the questions in order to ensure that children were understood fully and correctly. In addition to the interviews with children, the teacher observed children in the classroom and wrote their behaviors about environmental issues and prepared a detailed report for researchers. The teacher continued to write her observations about children's behaviors during the action process.

Data Analysis

The data obtained from the one to one interviews with children were audio taped and then each interview record was transcribed by one of the researchers one by one. As the first step, the transcribed data were read several times and reviewed in order to make sure about the clarity and completeness. In the literature, ecocentric and

anthropocentric drives were reported to explain underlying reason of environmental attitudes (as cited in Kahriman, 2010). As an initial step for the data analyses, data were coded whether responses were ecocentric or anthropocentric. Numbers of children's attitudes were coded as ecocentric or anthropocentric for each question and sub-question. Additionally, several examples for each code were recorded. Also, before and after the action plan, observation reports conducted by the teacher were examined and there are some examples of the views. Answers of the children and report of the teacher were commented and evaluated together.

In triangulation which is one of validation strategies researchers make use of multiple and different sources, methods, investigators and theories to provide corroborating evidence (Miles & Huberman, 1994; Creswell, 2007). Creswell (2007) mentions this process involves corroborating evidence from different sources to shed light on a theme or perspective. In the research, interviews with the children were conducted and observation reports of the teacher were used for the method triangulation. In this research patterns emerging from interview data were checked and triangulated with observation data.

In qualitative research reliability often refers to the stability of responses to multiple coders of data sets (Creswell, 2007). To provide with the reliability, data analysis process was conducted by two independent coders. These coders have studied at science and early childhood education before. All coding was done independently and separately. It was found that interrater reliability value for the data obtained from children is ,89. It is thought that these values are enough for interrater reliability. In the light of the examination of observation reports obtained from the teacher before and during the action process, codes and themes were formed.

Research Process

Research process was completed in reference of Bassey's (1998) eight phases (as cited in Köklü, 2001).

Phase 1. Identification of the research

This research can be identified as; transforming of attitudes into behavior of 60-72 month of age children continued early childhood education toward environmental issues. Research was conducted after the classroom teacher communicated with one of the researchers. In the interview, teacher said that in the classroom she organized lots of activities about environmental issues but these activities did not change the behaviors of the children. Teacher wanted help of the researcher to solve this problem and analyze the current implementations. After this interview, researcher has communicated with other researchers and research process was started Fall 2014 in preschool connected to elementary school in Kartal district of İstanbul.

Phase 2. Explanation of education status

Three researchers and teacher have come together and talked about the research plan. It was indicated that primary requirement was analyzing the present implementations. After that, it was focused on which activities should be implemented in order to change the children's behavior.

Phase 3. Collecting and analyzing the data

With the purpose of determining the attitudes of children about the issues of consumption patterns, environmental protection, reusing and recycling, and living habits, and teacher has made individual interviews with every child one by one using the picture interview questionnaire adapted by Kahriman (2010). Teacher has gathered the data from 14 children using the interview questionnaire and sound recording, and also completed interviews in fall of 2014. At the end of the analysis made by the researchers, all of the children in the classroom have positive attitude about the environmental issues. Also, the observation reports obtained from the teacher showed that children know what is right to protect the environment but have problems to transform this knowledge into the behavior in class. In order to change the attitude into the behavior, an action plan was organized and applied in spring of 2014.

Phase 4. Revision the data and searching the contradictions

Interviews, data obtained from the children and teacher reports show that all of the children have positive attitudes however; they do not transform this into the behavior. Starting this point, researchers have formed action plan different from the environmental education activities implemented by the teacher until now.

Phase 5. Starting the changes and solving one of the contradictions

Action plan includes determination of the children's behavior about the environmental issues, presentation of the materials and activities in order to increase the frequencies of the children's positive behaviors.

In order to change preschool children's attitude in behavior different activities were implemented. For 'Things I Can Do to Save My World' picture story book activity, teacher uses a finger puppet to attract the children's attention. During the story, puppet is storyteller and after reading, teacher and children discuss what they can do to save the world and natural resources. After discussion, using old materials and boxes, all children and teacher work together and make a robot. Also, they send it to friend school and learn sharing.

Teacher uses a frog puppet and reads 'Environmental King Frog' picture story book. After completed the story, children and teacher discuss the reasons of The Most Beautiful Environment competition. Teacher asks children some questions related to the story and she organizes The Most Beautiful Environment Picture Competition. Children draw the most beautiful environment and organize an exhibition.

For 'Don't Throw, Use' picture story book activity, teacher uses a puppet made by old socket and says a rigmarole. She attracts the children's attention to puppet and she says his name as Joe. She reads the story. In the story, brother of Paul grows and his bicycle does not suit him. Then, he shares his bicycle with Paul. After the story completed, teacher and children talk about reusing and they take a shoe box and make a new box using it. Then, they talk about how they can use it and put waste materials in it to use later.

For 'New Toy of Our Class' activity, teacher determines unused materials in the classroom and also wants parents to send unused materials to the classroom via children. They talk about what they can do using these materials and contributions of reusing for the environment and economy. After that, all children say their suggestions about what they can do and they form a graph. On the graph, they vote the suggestions. New toy is made according to votes.

For 'What Can We Do to Recycle!' activity, teacher asks children whatever they heard recycling or not. Teacher asks them where they throw the wastes. In order to provide children to use recycle bins, teacher directs the children to make recycling bins for the classroom. Children are divided into three groups for recycle bins of papers, glass bottles and plastic. Children work collaboratively and completed recycling bins. They put them into the classroom and use during the semester.

For 'Three Street Cats' story, teacher prepares a stick puppet and attracts the children's attention saying a rigmarole. Teacher reads the story using the puppet. Then, they talk about the animals living on streets. Teacher asks the children how the street animals are fed, where they live, sleep, how we should behave to them, etc. After that, teacher gives them a problem statement about a street animal. In this statement, children find a small cat on the street in winter and they bring it to the home. However, their parents do not give permission to feed this animal into the home and teacher wants them to dramatize this situation and solve this problem.

For 'What Can We Do to Save Threatened Species!' picture story book, teacher attracts the preschool children's attention via rigmarole. Teacher reads the story. Book is about the threatened plants and animals. Teacher and children discuss what they can do protect these species, protection of nature provides which benefits and what they can do to protect and clean the nature. After the story, teacher wants them to make a puppet of one of the threatened species. Children make bear, tiger, hippopotamus and so on. After they completed, they exhibit all of them in the classroom.

For 'Watching and Discussing on Video' activity, teacher firstly provide children to watch some videos on environmental pollution. Then, they talk about the videos and living habits of children. Teacher asks some questions related to the videos such as how a playground you want, where you play, where you throw wastes, they use recycling bins or not, what they can do to protect the environment. After discussion, for 'Environment Protector' activity, teacher and all children clean the classroom and garden of the school. Teacher takes photos and exhibits them on the wall.

For 'Let's Prepare Reminder Signs' activity, teacher hangs a list in the classroom examined positive and negative behaviors using the sign of happy/sad faces, using the visual reminders in the toilet, dramatic play center, behind the electric buttons and on the tables, making old materials useful with their parents at home via conversion week activity, giving responsibility to the children to become conscious consumer at home (closing the electric buttons burning unnecessarily, closing the taps running unnecessarily, using recycling bins in the

classroom, choosing of recycling products at shopping centers and closing the television when unused times, etc.) and taking the daily feedback from the children.

For 'What Can We Consume Less!' activity, teacher and children discuss about the consumption and conscious consumer. Teacher asks the children how they do shopping at markets and how they choose products. After the discussion, she wants them to make a shopping list at home with their parents. On the following day, teacher organizes a shopping center in the classroom with the children and then, children make shopping what they need. In the evaluation part, children say what they buy and which products are written on the shopping list.

For 'Exchange' activity, teacher and children talk about this concept and children say their ideas on this issue. Then, teacher wants them to bring a toy, apparel or book not used by the child to the classroom. On the following day, every child brings an unused toy, apparel or book from home and put it on the floor. They sit as a circle and exchange these materials between them. On a big cardboard, children and exchanged materials are coupled and also, teacher participates in this activity.

For 'Respect to Animals/Plants' activity, teacher tells an anecdote about a bird. In this anecdote, she finds an injured small bird and brings it to a veterinary and provides it to treat. After the treatment, she puts it in the nature and she wants children to find a cat or dog and feed it. Then, all of them go to the garden of school and finds an animal. Every day, children feed this animal respectively. Also, all children can take responsibility of a plant and grow at home.

This action plan was implemented to change the children's positive attitude into behavior in spring semester of 2014.

Phase 6. Observing the changes

Teacher reports gave us the opportunity to observe the changes.

Phase 7. Analyzing the data about the change

When the teacher reports were compared before and after the action plan; it was seen that the teacher met environmental protection behaviors of the children more than before. In teacher report, there are also expressions about how the children's ideas develop. You can see teacher's sample expressions in detail in findings section.

Phase 8. Revision the change and decide what will do

After the teacher reports, it was seen that action research became beneficial to change the attitudes of children into behavior about the environment. Teacher and researchers came together and they have seen that teacher benefited from picture story books very much and teacher found the change adequate. However, they have decided to plan and implement similar activities together to make the change permanent. Teacher informed the parents about the research result. Also, teacher indicated that other teachers faced with the same problems and wanted to talk about research process and results to other teachers in the school. In this way, it was provided teachers support each other.

Results and Discussion

Findings related to the interviews with children before action plan

In this part, before the action plan implementation, preschool children's views were determined. Preschool children's attitudes toward environmental issues were described under four dimensions as; consumption patterns, environmental protection, reusing-recycling, and living habits. Preschool children's attitudes toward environmental issues were categorized depending on the framework sketched by Thompson and Barton (1994) for all dimensions, and attitudes were distinguished as eco-centric or anthropocentric.

Consumption Patterns

The first dimension was defined as Consumption Patterns and the sub dimensions were water, paper and electricity consumption. Consumption patterns of the children were evaluated according to the answers given for

questions asked under this issue. In order to change preschool children's attitude in behavior related to water, paper and electricity consumptions, 'Things I Can Do to Save My World', 'Environmental King Frog' and 'Let's Prepare Reminder Signs' activities were implemented.

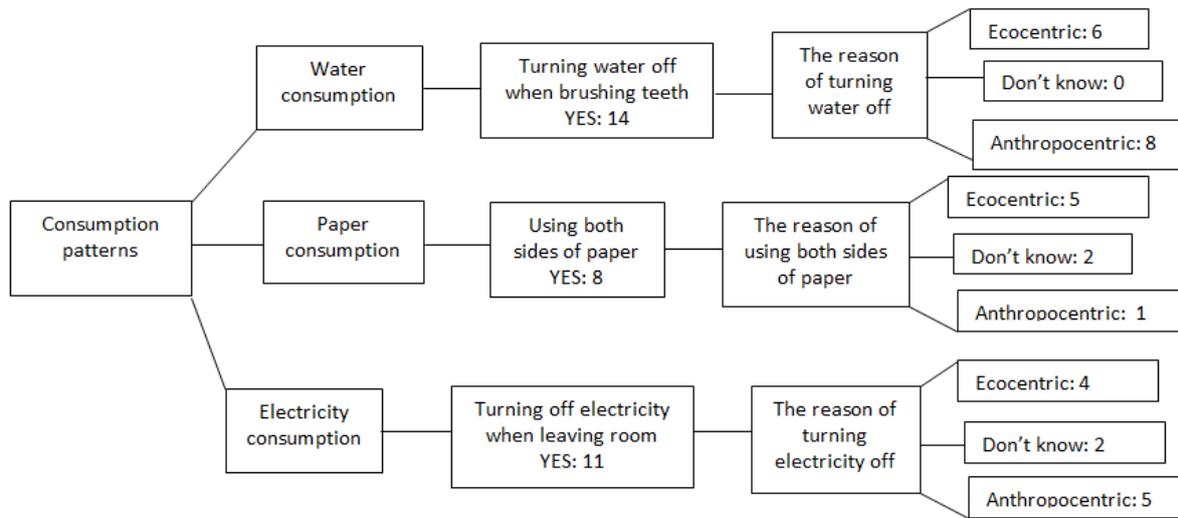


Figure 1: Preschool children's attitudes consumption patterns

Figure 1 was examined, answers for the "Consumption Patterns" dimension indicated that, most of the 5-6 years old preschool children of this study had ecocentric attitudes at a first glance. However, when they were asked about the reasons for doing/thinking so, their answers were evaluated mainly as anthropocentric. There are some examples of preschool children's views related to water, paper and electricity consumptions above;

- Water Consumption

Although all of preschool children (14) reported that they turn the water off when they brush their teeth, eight of them (out of 14) explained the reason "why they turn the water off" within the framework of an anthropocentric point of view. Examples of preschool children's anthropocentric attitudes towards the reason of water consumption were reflected as following:

"While brushing my teeth, I close the water for not jumping off."

"While brushing my teeth, I close the water for costs and running out of our money."

"While brushing my teeth, I close the water. If I don't, the sink can stone."

On the other hand, six preschool children answered the question within the framework of an eco-centric point of view. The following comments reflected preschool children's eco-centric point of view on why they turn the water off while brushing their teeth.

"While brushing my teeth, I turn off the tap not to spend too much water, in other way, water ends."

"I turn of the tap not to spend water unnecessarily."

"If we spend the water unnecessarily, we could not find when we need, it can end."

Moreover, preschool children's responses for the question "What happens if water gets scarce" indicated that while five preschool children explained the question from the ecocentric point of view, eight preschool children's environmental attitudes were evaluated as anthropocentric as far as water consumption is considered.

Preschool children's ecocentric attitudes towards water consumption regarding the result of water scarcity were exemplified following:

"If the water decreases, we could not give water to the birds. If we add all the water, there is no water."

"There is no water also near the river, our water ends."

Preschool children's anthropocentric attitudes towards water consumption regarding the result of water scarcity were exemplified following:

"If the water cuts off, we could not wash our hands and face."

"If the water decreases, we could not drink."

Furthermore, the answers of ten preschool children (out of 14) for the question “What is the source of water” was rain (n=1), river (n=2), well (n=1). Moreover, one preschool child did not give an answer for this question and 9 of them gave unrelated answers like factory, electricity, sink etc. According to this, it can be said that most of the preschool children do not know the resource of the water.

- Paper Consumption

As a result of the questions related to paper consumption, 8 of 14 preschool children stated that they use both sides of paper when they draw or write. Among them 5 preschool children valued ecocentric point of view for the reason of using the both sides of the paper. Preschool children’s ecocentric attitudes towards paper consumption regarding the reasons of paper consumption were presented below:

“In order not to throw the paper to the bin unnecessarily, I use both sides of it.”

“I use both sides of the paper. If we use too much paper, all the trees are cut down and we cannot breath.”

Only one preschool child’s anthropocentric attitudes towards paper consumption regarding the reasons of paper consumption was presented: “I use both sides of the paper to make picture and to become my pictures beautiful.”

Furthermore, half of the preschool children (7 out of 14) revealed ecocentric point of view for excessive paper use. Quotation of preschool children’s ecocentric attitudes towards paper consumption regarding results of wasting much paper were exemplified below:

“If we spent too much paper, all the trees are cut down.”

“If we spend the papers unnecessarily, the trees are cut down unnecessarily.”

“If we spend too much paper, all the trees are cut down and we cannot breathe any.”

Preschool children’s anthropocentric attitudes towards paper consumption regarding results of wasting much paper indicated as “Our papers end, we cannot make pictures”.

Answers for the question “what is paper made by?” showed that nine preschool children, out of 14, knew the source of paper as trees. Five preschool children, on the other hand, mentioned that they did not know the answer. According to this, it can be said that most of the preschool children do not know the resource of the paper.

- Electricity Consumption

The final sub-dimension of consumption patterns is about electricity use. As a result of the questions related to electricity consumption, 11 of 14 preschool children stated that they turn the light of when they leave room.

On the other hand, when preschool children were asked why they turned the lights off, five of them (out of 11) expressed the reason through anthropocentric point of view. Anthropocentric attitudes of preschool children’s towards electricity consumption regarding turning the lights off were presented below:

“I turn off the light when leaving the room in order not to get more than bills over.”

“I turn off the light when leaving the room because the lights can destroy.”

“I turn off the light because when the electricity cuts, we sit in dark and we are bored.”

Furthermore, 4 (out of 14) preschool children mentioned careful use of electricity through ecocentric point of view, as presented below.

“I turn off the light because we have wasted electricity.”

“I turn off the light when leaving the room, not to lights on unnecessarily.”

Similar with the answers above, 4 preschool children (out of 14) mentioned the relationship between electricity consumption and natural corruption when they were asked what happens to nature if we waste much electricity.

Example answers of preschool children’s ecocentric attitudes towards results of wasting electricity were presented below:

“If we spend more electricity, there is not anything in the nature.”

“There is no electricity in the nature.”

One of the electricity consumption studies was done by Banerjee and Horn (2014). Researchers present the design and evaluation of Ghost Hunter, an interactive system to engage parents and children in seeking out hidden sources of energy consumption in their homes. Through the Ghost Hunter design we attempted to evoke the cultural form of hide-and-seek as a way to help children and parents structure their activity. Their findings

describe how parents supported their children's learning about energy consumption, and ways in which the activities led to unexpected discoveries.

Environmental Protection

The second dimension was defined as Environmental Protection and sub dimensions were plants and bugs and other animals, and environmental pollution. There were 6 questions related to plants and bugs and other animals, and environmental pollution respectively. The answers of the preschool children were presented in the following sections. In order to change preschool children's attitude in behavior related to protection of plants, insects, animals and environment, 'What Can We Do to Save Threatened Species!', 'Respect to Animals/Plants', 'Three Street Cats', 'Watching and Discussing on Video' and 'Let's Prepare Reminder Signs' activities were implemented.

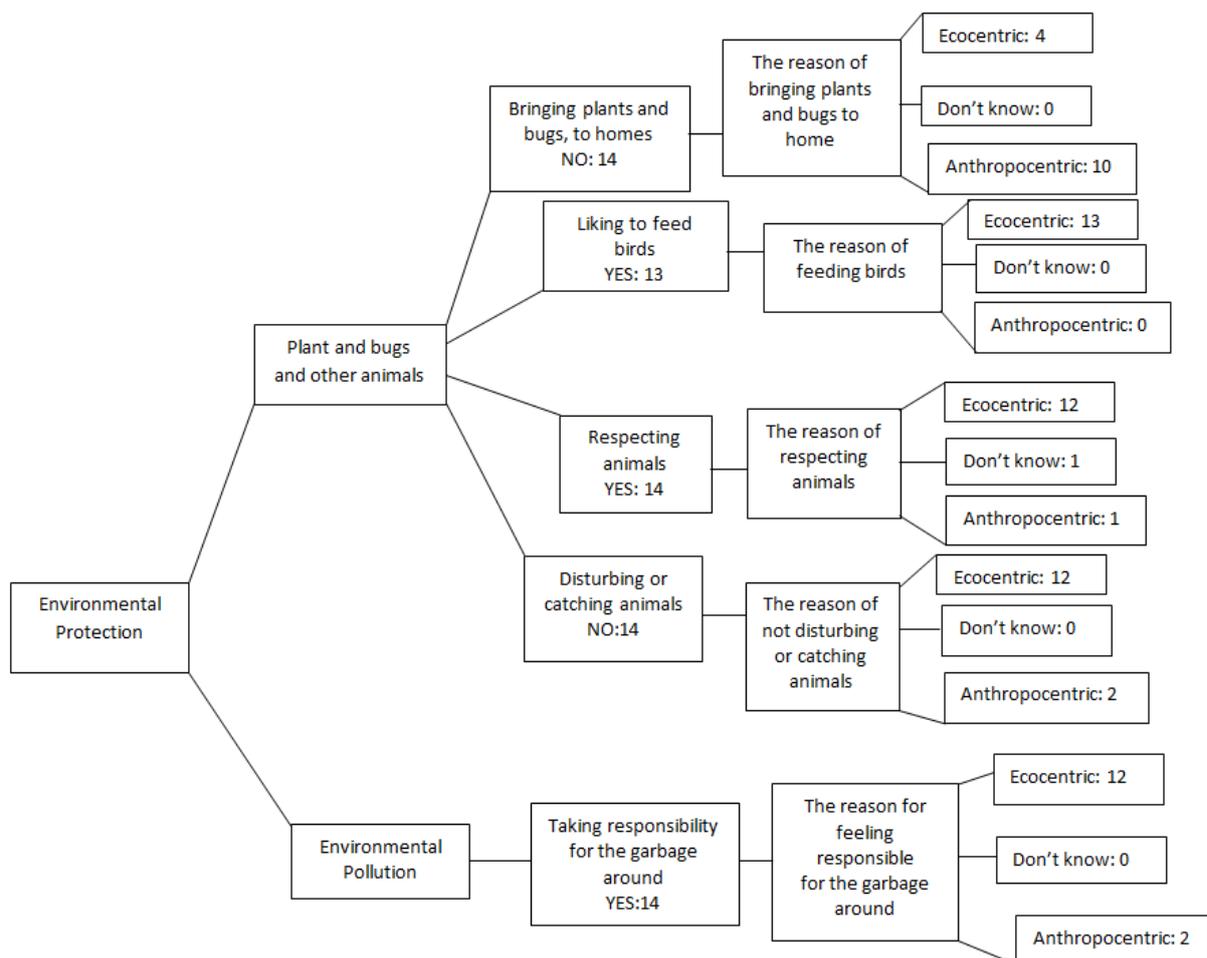


Figure 2: Preschool children' attitudes- environmental protection

When Figure 2 was examined, answers for the "Environmental Protection" dimension indicated that, most of the 5-6 years old preschool children of this study had ecocentric attitudes at a first glance. Also, when preschool children were asked about the reasons for doing/thinking so, their answers were evaluated mostly anthropocentric, only the question of the reason of bringing plants and bugs to home, they have anthropocentric attitude. There are views of preschool children related to plant, bugs and other animals and environmental pollution above;

- Plants and bugs

All of the preschool children reported that they never bring plants and bugs they find outside to their homes. Most of preschool children reflected anthropocentric attitudes towards plants and bugs regarding the reason why they did not bring them home. Examples of children's responses were presented below:

"I am like the child watching plants and insects in the nature because they do not be taken nearby their mother."

“I want them to stay with their friends, we should watch them unthreateningly.”
 “I do not take the plants and insects to my home because my mom does not want.”
 “I look at the plants and insects because watching them is beautiful.”

Examples of children’s responses reflecting their ecocentric attitudes towards plants and bugs regarding the reason why they did not bring them home were presented below:

“If I take the animals and plants to home, they will be sad. They like staying in the nature.”
 “I do not take them to home for their living themselves in the nature.”

Citations of preschool children’s responses revealing their anthropocentric attitudes towards plants and bugs regarding the results for bringing them home was as below:

“I like but I do not take them to home because my mom doesn’t want. She is afraid of them very much.”
 “I do not take them to home because if we take them to home, it is bad and our home smells bad.”

Citations of preschool children’s responses revealing their ecocentric attitudes towards plants and bugs regarding the results for bringing them home was as below:

“If we take the plants and animals in the nature to home, they could not find foods, they are starved and die.”
 “If I take them to home, they cannot breathe and they cannot alive.”

Preschool children’s answers about home of plants and bugs indicated that some of them have thoughts about their habitat. Their responses for the home for plants and bugs were as follows: Grass (n=3), nature (n= 3), forest (n= 2), soil (n=1), outside (n= 4), underground (n= 1). According to this, related to the question of plants and insects home, children give correct answers.

- Other Animals

Preschool children’s attitudes towards animals were evaluated through 4 questions under the environmental protection dimension. As an initial step preschool children were asked whether they like to feed the birds or not. Many children (13 out of 14) explained that they like feeding birds. In a similar way, most of them (13 out of 14) explained the reason why they like feeding birds towards ecocentric point of view. All of the children have the ecocentric attitude and indicate that they feed the birds because of loving them and not wanting them to become hungry in nature.

The second question in order to evaluate preschool children’s attitudes toward animals was about the importance of the animals; they were asked if they think animals are important or not? All of the preschool children stated that animals were important. Twelve children answered the question why do they think animals are important, within the framework of an ecocentric point of view. Preschool children’s ecocentric attitudes towards other animals regarding the reason why animals are important were illustrated below through their responses.

“I think the animals are important because they are a part of the world”.
 “Animals are important because they are alive”.
 “Animals are important because when they are hungry, they cannot find anything at outside”.
 “If animals die, it would be pity”.
 “Animals are important, they are the natural resource”.

Only one preschool child addressed use of animals by people’s needs. His anthropocentric comment is “I love the dogs very much because they protect the humans”.

Then preschool children were asked whether they disturb or catch animals they find outside or not. All of preschool children reported that they do not disturb or catch animals they find outside. Similar to the above results, their rationale for not disturbing or catching animals can be explained by ecocentric point of view. More than half of the preschool children of this study (12 out of 14) mentioned that they do not want to hurt animals; therefore, they do not disturb or catch them. Examples of preschool children’s comments presenting their ecocentric attitudes regarding the reason of not catching or disturbing animals that they find outside were reflected below:

“I do not chase the animals because they are like humans, we would not also want.”
 “I do not try to catch the animals because if I do, they could not go to their homes.”
 “I do not try to catch the animals because I love them very much.”
 “I do not try to catch the animals because if I do, they die. Their homes are outside.”

Two preschool children's anthropocentric attitudes towards animals regarding the reason of not catching or disturbing animals were exemplified following:

"I do not like some animals, I am afraid of them. They bite."

"If I try to catch them, they are scared and scratch us."

In addition, preschool children's attitudes towards wild animals were investigated under the dimension of environmental protection. Most of the preschool children (13 out of 14) believed that wild animals should be protected. Thirteen children's responses for the question 'Why do you think that wild animals should be protected?' indicated that they had ecocentric attitudes toward wild animals. Ecocentric attitudes of preschool children's towards wild animals were presented through examples of their responses as below:

"Wild animals should also be protected because they are like us."

"They should be protected. If not, they can die."

"If we strike them, it would be a pity to them."

"They would not die because they have babies."

"If they die, there is little animals to look at in the nature."

In addition, preschool children were asked why some people kill wild animals and examples of their responses were reflected below:

"People kill the wild animals in order to protect themselves."

"Some people cannot like animals and so they can kill."

"Because of their harms, people kill some wild animals."

"Some people can want to eat them, therefore they kill also."

Preschool children responses to the question of 'Which animals are killed mostly?' as bear, dog, bird, tiger and rabbit. Some of the children have said more than one animal name Kahrıman-Öztürk et al. (2012) study indicated that preschool children have higher levels of respect towards plants and animals. Similarly, Kidd and Kidd (1990), and Paprotna's (1998) studies results revealed that even young children can reflect their positive ideas about plants and animals. In fact, preschool children have many opportunities to interact with plants and animals in their daily life, in school settings and at home as well as outside.

• Environmental Pollution

Under environmental protection dimension preschool children finally were asked whether they take garbage from the ground and throw them to rubbish bin or they do not take bins from the ground. All of them indicated that preschool children pick up garbage from ground when they see. Moreover, 12 of them valued ecocentric attitudes that they do not want to give harm to environment therefore they try to pick up garbage from ground.

Examples of preschool children's responses revealing their ecocentric attitudes were reflected below:

"If we do not throw wastes on the ground to waste bin, our environment will be polluted."

"Because of not being polluted the world, running dry our rivers, running short our water, being starved our animals, I throw to waste bin."

"If we do not throw to waste bin, our nature will be dirty."

Then preschool children were asked that what happens if we do not take them from ground and we do not throw them to rubbish bin. 12 of them answered the question valuing ecocentric attitudes. Ecocentric attitudes of preschool children's towards environmental pollution regarding the result for feeling responsible for the garbage around were presented our environment and nature will be clean, does not be polluted.

On the other hand 2 preschool children responded this question valuing benefits of human as reflected below:

"The environment will be dirty and our mom has to clean. She comes from work and is tired."

"If we do not throw wastes to waste bin, people cannot see, strike over and slip."

Reusing and Recycling

The third dimension was defined as Reusing and Recycling and children were asked three questions to grasp their attitudes. In order to change preschool children's attitude in behavior related to reusing and recycling, 'Don't Throw, Use', 'New Toy of Our Class', 'What Can We Do to Recycle!', 'Watching and Discussing on Video', 'Let's Prepare Reminder Signs', 'Exchange' and 'Things I Can Do to Save My World' activities were implemented.

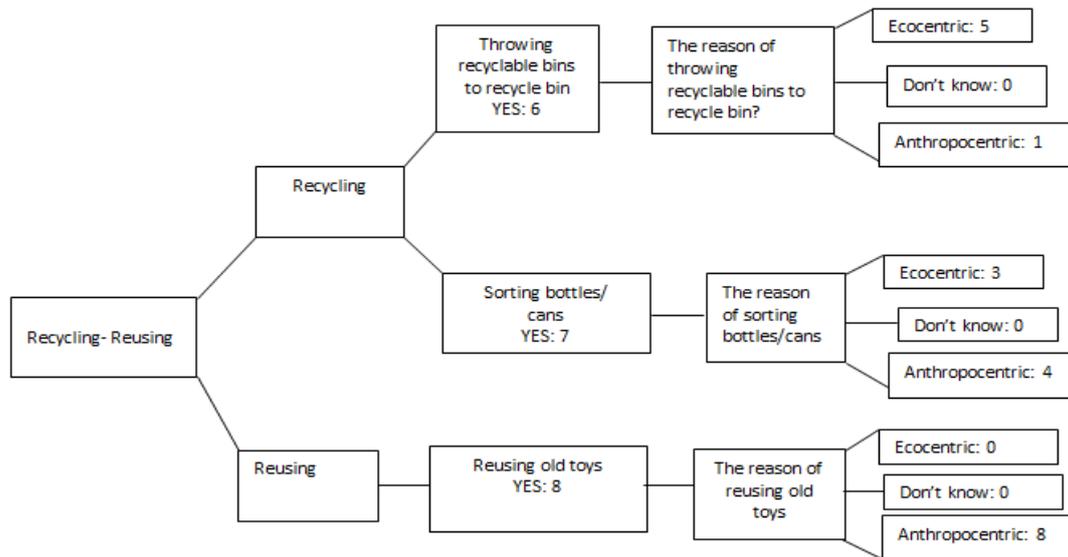


Figure 3: Preschool children's attitudes recycling-reusing

When Figure 3 was examined, the answers for the "Reusing and Recycling" dimension indicated that, approximately half of preschool children determine the recycling and have been evaluated related to their attitudes. Also, when they were asked about the reasons for doing/thinking so, their answers were evaluated mostly anthropocentric. There are some examples of preschool children's views related to recycling and reusing above;

- Recycling

As an initial step preschool children's awareness about recycling was examined and they were asked to define recycling. Eight participants did not have any idea about recycling while six preschool children defined recycling. Preschool children's recycling definitions were exemplified below:

"To form a new thing with wastes."

"Saying to throw wastes, they pile up and become paper again."

"Throwing wastes, people take them and make new thing with them."

Six preschool children who had idea about what is recycling were also asked whether they throw recyclable bins to recycle bin or they throw things away when they're done with them. Five participants explained that they threw recyclable bins to recycle bin in order to make them recycled, valuing ecocentric point of view.

Preschool children's responses regarding their ecocentric attitudes towards recycling were reflected below:

"They take recycle materials to the factory, new papers are send to the school from there and we make pictures again."

"When we throw to recycling bins, all papers can be made paper again."

"They can be new things again, they are not waste."

Only one child has anthropocentric attitude and has reflected as "Because of being a sign there, I throw to that waste bin."

Under this sub-dimension preschool children were also asked if they sort their bottles/cans and recycle them. Seven of them reported that they sort their bottles/cans and recycle them. On the other hand three (out of 7) of them explained the reason why they do so from the point of ecocentric framework. Examples of preschool children's quotas presenting their ecocentric attitudes towards recycling were reflected below:

"They make new things with them and we use again."

"They can be made again and we can put something into them."

Children who have anthropocentric attitude also stated that they will throw away bottles into different boxes with the explanation of "I divide for factory, there are different recycle bins, it can be difficult to divide then".

- Reusing

Under this dimension preschool children's attitudes toward reusing was also investigated. Eight preschool children declared that they gave toys to other kids or reused when they did not play them anymore. 5 children

have no answer, 2 children have also made the explanation as “I do not both. When I do not play also, my toys are in the box”.

While the children explaining their reasons to share toys with their friends, all of them have showed anthropocentric attitude. Examples of preschool children’s quotas presenting their anthropocentric attitudes towards recycling were reflected below:

“My friends can also want to play with my toy.”

“I like sharing my toys.”

“I give my toy to my friend because of its oldness.”

Preschool children’s attitudes towards reusing regarding the result of reusing old toys only one child showed ecocentric attitude and said that “if we throw our toys, it would be pity. If it goes to recycling, we can play again”. Other seven children have anthropocentric attitude and have answered as “if I do not use, I stay them in home. If there are no toys, I would be sad”.

A small number of studies pointed out recycling issues. Findings of these studies (Palmer, 1995; Palmer et al., 2003; Öztürk-Kahriman & Karaaslan, 2010) indicated that young children can understand recycling issues when they confronted with enough stimulus and experiences about recycling. Correspondingly, Kahriman-Öztürk et al., (2012) study findings also showed that all preschool children who attended the school with a recycle bin and recycling activities were familiar with recycling issues. On the other hand, the rest of the children did not have similar experiences or stimuli.

Haktanır et al. (2011) and Grodzka-Jurczak et al. (2006) found that young children can express their ideas about reduce and reuse issues. Moreover, Haktanır et al. explained that these two concepts can easily be made meaningful for children in preschool settings with different hands on projects and activities. Also, Turkish National Curriculum of Early Childhood Education includes examples of this kind of activities (Ministry of National Education [MONE], 2013).

Living Habits

The final dimension for the preschool children’s environmental attitude was titled as Living Habits. Under this dimension, preschool children were asked three questions in order to investigate their attitudes towards playground preferences, residence preferences and transportation preferences. In order to change preschool children’s attitude in behavior related to living habits, ‘What Can We Do to Consume Less!’, ‘Watching and Discussing on Video’, and ‘Things I Can Do to Save My World’ activities were implemented.

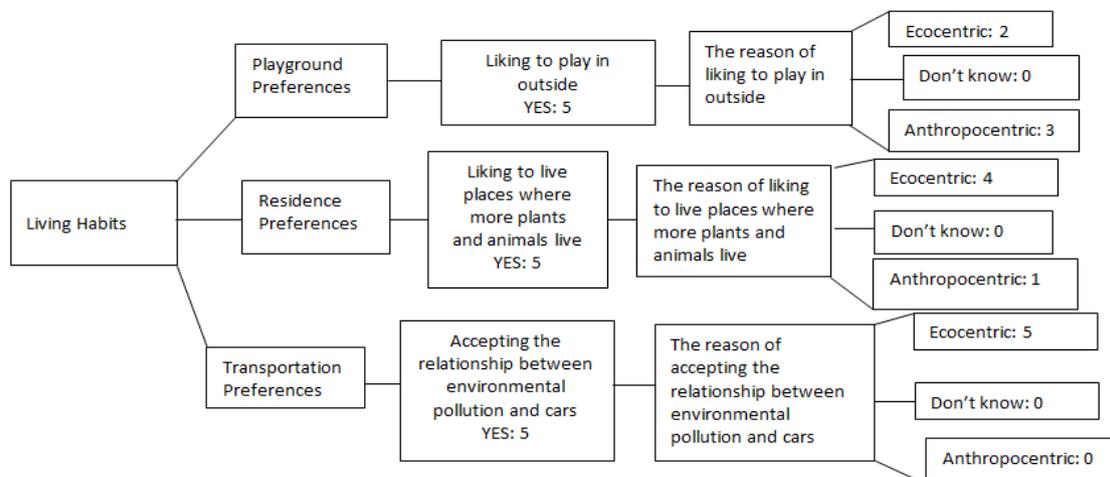


Figure 4: Preschool children’s attitudes – living habits

When Figure 4 was examined, while preschool children have been organizing their living habits, a few of them consider environmental factors. There are some examples of preschool children’s views related to living habits above;

- **Playground Preferences**

Preschool children's playground preference was investigated through the question Do you like playing outside or home? Five of children reported that they like playing in outside. Moreover, two preschool children among five explained the underlying reason why they like playing in outside within the ecocentric point of view.

Preschool children's responses reflecting their ecocentric attitudes towards playground preferences were presented below through examples from their responses.

"I like playing outside to play in nature with my friends, enjoy and play with different materials than toys."

"It is very enjoyable to play on sand, I love very much but my mom does not give permission me to go outside."

On the other hand, three preschool children reflected their anthropocentric attitudes towards playground preferences as exemplified below:

"I will buy a new car, do speedway and drive there."

"I can have more friends outside so, I like playing outside."

"Because I am not bored while playing outside."

- **Residence Preferences**

Under living habits dimension, preschool children's attitudes toward residence preferences were also investigated. Five of the preschool children expressed that they would like to live places where there are more plants and animals rather than crowded places.

Additionally, preschool children were asked about the reason why they want to live a place where there are plenty of animals and plants. Four of them explained the reason valuing ecocentric point of view as reflected.

Quotations below reflected preschool children's ecocentric attitudes towards residence preferences.

"I want to live and run in nature".

"There are animals in nature and I love animals, I want to live with them".

"I want to live in nature; there are grasses and butterflies, very beautiful".

"I want to live in nature; then, there are a lot of animals to feed".

On the other hand, only one preschool child gave answers that reflected their anthropocentric point of view on residence preferences as presented below:

I love living in nature, in other places car can crush.

- **Transportation Preferences**

As a final sub topic for this section, preschool children were asked about the kind of transportation they use to school to evaluate their living habits. Four preschool children stated that they go to school by car and by public transportation while one stated that they walk to school. Five children also did not give answer.

Afterwards, preschool children were asked if there is a relationship between environmental pollution and cars. Five children could give an explanation for the relationship between environmental pollution and cars as reflected.

All of them defined the relationship between environmental pollution and cars from the side of ecocentric framework. Preschool children's responses below exemplified their ecocentric point of view regarding the relationship between environmental pollution and cars.

"There is little relationship between the environmental pollution and cars, for example; they remove the gasses and pollute the environment".

"Mud in the wheels of the car can pollute our environment".

"If we go on the grasses by car, grasses can be polluted and squeezed, we can also squeeze the flowers".

Findings related to the teacher's reports before action plan

Reports on one-semester observation of teacher were examined until the action plan go on after the classroom teacher has done interviews. Results of the examination show us four themes as paper consumption, water consumption, environment protection and respect to the animals. Classroom teacher's responses below exemplified related to these themes:

“Although four children say that ‘I use both sides of paper’ in the interview, they continue to use only one side during the semester in the observation. This is very interesting. They say what should be done but they did not”.

“Three children have said that I turn off the water in the interview but I observed them not to show this behavior often”.

“Although most of the children say that ‘I throw to the waste bin if I saw something on the floor’, when I asked them for a waste in the classroom, they answered as ‘I have not threw also”.

“In the interview, one child said that ‘I do not bring insects to the home’ but before a few days from the interview, he brought an insect in a jam and despite my insitences he did not left in the garden”.

Findings related to the teacher’s reports after action plan

After the action plan, when the observation reports examined; it is seen that teacher meet environmental protection behaviors of the children more than before. Positive behaviors of children are about the environmental protection for a negative situation conscious and feeling an inclusion to negative situations. Classroom teacher’s responses in the observation reports below exampled;

“We have visited to fire department with the children. During the visit, F was talking to a man. F had seen this man throwing cigarette on the ground and warned him”.

“C has come today and said ‘my father threw the cigarette on the ground and I asked if you want to fire. I have extinguished it and threw in waste bin”.

“M has warned Z for using too much napkin in toilet. Before the action plan, M was not sensitive as now for this issue. This made me happy”.

“G has forgotten tap open and S turned of it and warned to G to become more careful, showed the reminder sign on the tap. It is beautiful to see the signs are useful”.

“In action plan, I have conducted an activity about reusing the papers. After this activity, most of the children use both sides of paper however, there are still children liking to use more paper in the classroom”.

“B has found rope and a piece of fabric and asked to me if they can do new thing using them. Children have enjoyed very much to make new things using old materials. It was beautiful B’s putting forward and opinion”.

“When going for the meal, children have not paid attention to turn off the light and I have turned off. In these days, I have not behaved in a hurry for turning off the light. Today, I have noticed B come back and turn off the light. They are aware of anymore”.

In observation reports, it is seen that when children notice a negative situation, instead of intervening by themselves they talk to teacher. Classroom teacher’s expressions below exampled;

“Today, one child said to me ‘B is using more trees’ and I did not understand, though he said incorrectly. I asked him if you want to say paper but he said that no, tree”.

In teacher report, there are also expressions about how the children’s ideas develop. For example; *“In the garden, after we have played water transport game I asked what you want to do with this water in the bucket. Some of the children said that we can protect it to clean our hands and others said we can irrigate plants in the garden. We have also irrigated plants and trees”.*

Kwon (2003) conducted a research after formal education during a semester with six-year-old Korean children to examine change and development of concepts about living creatures. Throughout this research, he interviewed with six children, observed activities based on daily life and teacher-child interaction and evaluated teacher diary. At the end of the research, it was emphasized that teaching methods giving opportunity children to establish interaction with materials directly and teacher-child interaction have a crucial role on development of scientific concepts. Volk and Cheak (2003) in the study aimed to examine effects of environmental education programs on children, parents and teachers. At the end of the study, it was determined there is an increase in environmental literacy, writing and speaking skills, decision making and critical thinking skills of children. On

the other hand, program that was conducted has provided children to be an active participant to solve environmental problems. Chapman and Sharma (2001) found that children have conscious about environmental problems and to solve these problems they have positive attitude but they could not give significant examples related to environmental problems solution. At the end of the study, it is determined that environmental education should not give only knowledge about environment instead; it should focus on conscious, concern, attitude, motivation and problem solving.

Conclusion and Recommendations

In this research, qualitative research methods were used to collect and analyze the data and children's attitudes were grouped toward environmental issues. Results of the study showed that children have mostly anthropocentric attitudes towards environmental issues in water and electricity consumption patterns, reusing and also they have ecocentric attitudes towards paper consumption, environmental protection, recycling and living habits especially in residence and transportation preferences. In this study, children did not express their ideas about redistribute, reflect and rethink anymore. Haktanır et al., (2011) emphasized that varied educational activities and projects provide children to understand environmental concepts more clearly. It shows the importance of providing stimuli and experiences about environmental education in early years. Different concepts and activities can be integrated into early childhood education program to enhance the ideas of children about environmental issues. Grodzińska-Jurczak et al. (2006) in the research conducted with parents and early childhood period children found that the six-year-olds were familiar with basic notions and could identify improper behavior with regard to the environment; in the case of more detailed environmental issues, their knowledge and practical application of environmental protection principles were worse. Musser and Diamond (1999) also indicated in the research that preschool children's attitudes towards environment were generally positive.

Besides, in the research, it was seen that children generally have ecocentric attitudes towards paper consumption, environmental protection, recycling and living habits especially in residence and transportation preferences. However, in observation report of classroom teacher, it was seen that they did not behave in an ecocentric manner. After the action plan applied, classroom teacher has indicated a difference in children's behavior. In the light of this result, in order to provide them to behave in ecocentric manner, teachers should focus on environmental concepts into their curriculum can be said as recommendation. Early childhood education needs collaboration between teacher and parents. Therefore, parents can make small activities at home and support implementation of classroom teacher. Kildan and Pektaş (2009) was aimed to learn the ideas of early childhood educators about teaching science and nature concepts and found that most of the teachers indicated acquisition and indicators enough in the program, program provides the teaching of these concepts but it does not prepare the children to future life and education life. Moreover, most of the teachers indicated that science and nature in the program provide the children to gain the attitudes of curiousness, open-mindedness and skepticism. On the other hand, teachers stated that physical conditions of classroom are not enough to teach the science and nature concepts and seminars are necessary about these concepts. Grodzińska-Jurczak et al. (2006) examined attitudes toward the environment, and to determine the level of environmental knowledge among pre-school children and their parents. Parents showed favorable environmental attitudes, but were not always willing to change their habits or make sacrifices for environmental conservation.

As a conclusion of the study, it can be said that providing children to develop ecocentric attitudes during early years of life have a crucial role for protection the world and living creatures in it. Throughout environmental activities and education in early childhood education centers, children can gain positive attitudes and behaviors about the consumption matters for the sake of the nature, they can gain an ecocentric attitude in protection of plants, animals and their environments, they can learn about recycling issues and its necessity for a better life and they can understand the value of natural environment for themselves and other living creatures (Kahriman-Öztürk, 2010). Early years of life is good to start bringing up children in an ecocentric attitude. Therefore, as a recommendation, environmental education programs should be developed for early years of children. Especially, in early years, environmental education program should be structured and educational implementations can be enriched and generalized.

Activities should be planned as indoor and outdoor. Early childhood education classrooms should be organized with environmental education materials to encourage children's developing ecocentric attitudes. Garden of the early childhood education center should serve for this aim. Garden of the school should be rich diversity to provide children opportunities to enhance their environmental attitudes. Also, early childhoods educators are responsible are very crucial for environmental education in early years of children. Therefore, they should

provide opportunities children to meet environmental issues and enhance their ideas. In the light of this issue, educators should be trained about environmental issues to integrate into their programs. Teachers can also be a connector between early childhood education and society to develop projects about environmental issues.

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