

## Investigation of Preschool Children's Perceptions to Protect the Environment Through Drawings

Tuğyan Kavaz<sup>1</sup>, Betül Kizgut-Eryilmaz<sup>2</sup>, Buse Polat<sup>3</sup>, Dervişe Amca-Toklu<sup>4</sup> & Filiz Erbay<sup>\*5</sup>

\* Corresponding author

E-mail: [filizerbay@aydin.edu.tr](mailto:filizerbay@aydin.edu.tr)


1. Preschool Teacher, Günişığı Okul Öncesi Eğitim Merkezi, Nicosia (Lefkoşa), Turkish Republic of Northern Cyprus (TRNC).

2. Preschool Teacher, Iskenderun Bahçeşehir Koleji, Hatay, Turkey.

3. Preschool Teacher, Yaşam Ağacı Özel Eğitim ve Rehabilitasyon Merkezi, Ankara, Turkey.

4. Department of Preschool Education, Faculty of Education, Near East University, Nicosia, TRNC.

5. Department of Child Development, Faculty of Health Sciences, İstanbul Aydın University, İstanbul, Turkey.

 10.46303/tpicd.2021.4

### How to cite

Kavaz, T., Kizgut-Eryilmaz, B., Polat, B., Amca-Toklu, D., & Erbay, F. (2021).

Investigation of Preschool Children's Perceptions to Protect the Environment Through Drawings. *Theory and Practice in Child Development*, 1(1), 41-55.

<https://doi.org/10.46303/tpicd.2021.4>

### Copyright license

This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International license (CC BY 4.0).

### ABSTRACT

This study aimed at investigating the perceptions of children attending preschool education about protecting the environment through drawings. This study was carried out with a qualitative research method. The study group of this study consisted of 80 children among 48-60-month-old children attending preschool education in Nicosia, Turkish Republic of Northern Cyprus (TRNC). In this study, the children were requested to explain their thoughts through drawings by asking the following question: "What can be done to protect the environment?" Then, the children were asked to describe their drawings orally. The descriptions of children were recorded in writing and analyzed. As a result of the analysis, it was determined that the most common perception about protecting the environment was "not littering". In addition to this, it was determined that the children had different perceptions as "not wasting water", "not polluting nature", "not starting a fire", "not polluting the sea", and "not cutting the trees". It was concluded that the children had a perception of protecting the environment only from these aspects with the drawings that included reduce and respect dimensions of the 7R model. It was also concluded that they did not have a perception in the dimensions of reuse, rethink, reflect, recycle, and redistribute.

### KEYWORDS

Environmental education; environmental perception; environmental protection; preschool child; 7R model.

## INTRODUCTION

It is a fact that environmental problems have increased in recent years and become an important problem worldwide. Particularly since the second half of the 20th century, there has been sensitivity towards environmental problems, and the approaches to solve these problems are gaining importance. Today, countries allocate budgets to cope with changing environmental conditions and environmental problems. However, raising environmentally sensitive individuals can be considered as an easier way than allocating a budget to the polluted environment (Duran, 2021; Kışoğlu et al., 2010).

The preschool period plays a key role in the environmental awareness education of children as well as its role in shaping and forming the perceptions and attitudes towards the environment (Basile, 2000). During this period, children visualize their perceptions of the environment in their minds based on their senses. They change and recreate these visualizations in their minds with each new sensation. Thus, the child completes the missing senses in his/her mind. Experiences gained through perception in the first years of life play an important role in shaping lifelong behaviors and attitudes. As the child and the environment are an inseparable whole, it is extremely important for young children to perceive the environment and the concepts related to it correctly (Düzenli et al., 2019; Phenice and Griffore, 2003; Tilbury, 1994).

The most important factor in forming perception is the education given on the environment (Carter, 2016; Edwards and Cutter-MacKenzie, 2011). Environmental education is generally defined as the process of clarifying concepts, starting with understanding the values and interrelationship of people between their cultures and their biophysical environments, and developing the skills and attitudes necessary to appreciate and recognize these values and relationships (Palmer, Grodzinska-Jurczak, and Suggate, 2003). As can be seen, the basis of environmental education is to clarify the concepts related to the environment. Other purposes of environmental education include making individuals environmentally literate by improving their attitudes, behaviors, and skills about the environment, raising awareness about the environment, and increasing environmental awareness (Gülay and Öznacar, 2010). Therefore, it is considered important to help children acquire environmental awareness at an early age, to transfer environmental protection methods, and to transform this information into behavior through education.

Environmental education refers to covering a variety of different topics related to the environment in an educational setting (Öztürk-Samur, 2018). Omep (2011) suggests a model for environmental education of children in early childhood in Sustainable Environmental Education projects. This model is called the 7R model and includes the themes of reduce, reuse, respect, rethink, reflect, recycle, and redistribute (Buldur, 2018). Considering these themes, reduce refers to “doing more with less”, reuse refers to “making more use of old materials and produce waste materials”, respect refers to “respecting the nature, environment and living things”, rethink refers to “caring to value the environment”, reflect refers to “reflecting on different

cultures”, recycle refers to “using materials for different purposes”, and redistribute refers to “using resources effectively in case of needs”. When this model is used, it is hoped that preschool children will acquire sustainable behaviors towards environmental education and, thus, they will have the necessary knowledge and skills by displaying conscious behaviors towards their environment (Güler, 2017). In addition to this, good environmental education for early childhood should include content related to real-life experiences, interactions with different disciplines, and communication with children. The teacher should focus on experience rather than teaching, show children his/her interest in the environment, and be a role model in protecting the environment. Environmental education should start with simple experiences and children should have positive experiences in open spaces (Basile and White, 2000; Öztürk-Samur, 2018). Shepardson (2005) argued that children perceived the environment in which they met their needs and communicated with others. Considering the studies conducted in parallel with this argument, it was emphasized that when children gained environmental awareness and attitudes towards the environment in the preschool period, they developed positive attitudes towards the environment at later ages (Gülay-Ogelman and Güngör, 2015) and increased their awareness of environmental problems (Taşkın and Şahin, 2008). In addition to this, these environmental achievements not only enable children to be environmentally conscious and respectful citizens but also support all developmental areas (Buldur, 2018; Yayla-Ceylan & Ülker, 2014).

It was determined that the studies in literature investigated what children understand from the concept of the environment (Günindi, 2012; Yardımcı and Bağcı-Kılıç, 2010), the effects of different socio-economic levels and the environment in which children live on environmental perception (Taşkın & Şahin, 2008), the effects of cultural differences in environmental perception (Boeve-De Pauw & Van Petegem, 2012), children's feelings about environmental problems (ecophobia) (Strafe, 2012), their perceptions of solutions to the environmental problems (O'Malley, 2015), and the effects of environmental education on children (James and Bixler, 2010; Karimzadegan, 2015; Liefländer, 2015; Mallena-Barrazab et al., 2009). Considering the studies conducted on the preschool children, it was determined that there were no studies investigating the environmental protection perceptions of children through drawings and associating these perceptions with the 7R model. Therefore, the method of drawing pictures, which was considered to be the most natural reflection of their emotions, was used to investigate the perceptions of children on protecting the environment (Aykaç, 2012). Revealing what children know or do not know about protecting the environment and investigating their perceptions on these issues will guide which subjects should be emphasized in the planning of the training to be provided for them. It is considered that this study will contribute to the environmental education researches and studies that will be planned for preschool children from now on. This study is considered important in this respect.

In this regard, this study aimed at investigating the perceptions of 48-60-month-old children attending preschool education about protecting the environment through drawings. In this regard, the following questions were adopted:

#### Sub-objectives

- What are the perceptions of 48-60-month-old children about the methods of protecting the environment in their drawings?
- In which areas of the 7R model do the perceptions of 48-60-month-old children about protecting the environment in their drawings match?

## METHOD

### Research model

In this study, the phenomenology research design was used. Phenomenology is a qualitative research design and it is used to reveal and interpret individual perceptions or perspectives on a certain phenomenon.

### Study Group

The sample group of this study consisted of 80 children selected from the classes attended by 48-60-month-old children in public kindergartens in Nicosia, Turkish Republic of Northern Cyprus. 45 of the participants (56,25%) were female and 35 (43.75%) were male.

Purposeful sampling method, one of the non-probability sampling methods, was used to determine the sample group. Purposeful sampling is often used in qualitative studies to reach the appropriate sample for the research purpose. This sampling method includes the groups of people who are convenient, accessible, and ready for the study. In this regard, the children who were convenient, who were attending preschool education institutions, and who agreed to participate in the study were included in the study group of this specific study (Cohen et al., 2007; Yıldırım & Şimşek, 2011).

### Data Collection

The children in the study group were requested to make drawings by asking the following question: "What can be done to protect the environment?" The children were provided with crayons, dry paints, and A4 papers. They were informed that they could use these materials. The children were also informed that there was no time limit and they had as much time as they wanted to complete their drawings. Then, the children were asked to describe the drawings they made and the expressions were noted for each child. In order not to be influenced by other children, the children were requested to make their drawings in suitable space of the school and when they were alone with the researchers.

### Data Analysis

During the data analysis process, the method suggested by Dey (1993) was followed (as cited in Şimşek-İşliyen and İşliyen, 2015). Dey handles the data analysis process in three stages as 'describing', 'classifying', and 'associating'. The data obtained in this study were attempted to be analyzed by considering the stages of 'describing', 'classifying', and 'associating'. First, all the

drawings made by the children were brought together and examined in detail by the researchers. Then, the drawings were brought together and classified according to their contents. The environmental protection methods intensively drawn by the children were noted.

In the second stage of the analysis, the data were conceptually coded and divided into themes. The main topics of the analysis were determined with a systematic classification of data. In the last stage of the analysis, the themes were compared with each other and associated with the 7R model. The findings were defined and attempted to be interpreted.

When associating the data in terms of the 7R model, Three Components of Education for Sustainable Development and the 7R table were taken as basis in the evaluation phase (Buldur, 2018).

## FINDINGS

The findings of this study were presented in two parts: the investigation of the drawings according to the perceptions about environmental protection and the evaluation of the drawings according to the 7R model.

### **Investigating Pictures According to the Perceptions of Environmental Protection**

In line with the first sub-problem of this study, the findings regarding children's perceptions of protecting the environment included in their drawings were presented in Table 1.

**Table 1.** Findings Regarding the Perceptions of Environmental Protection

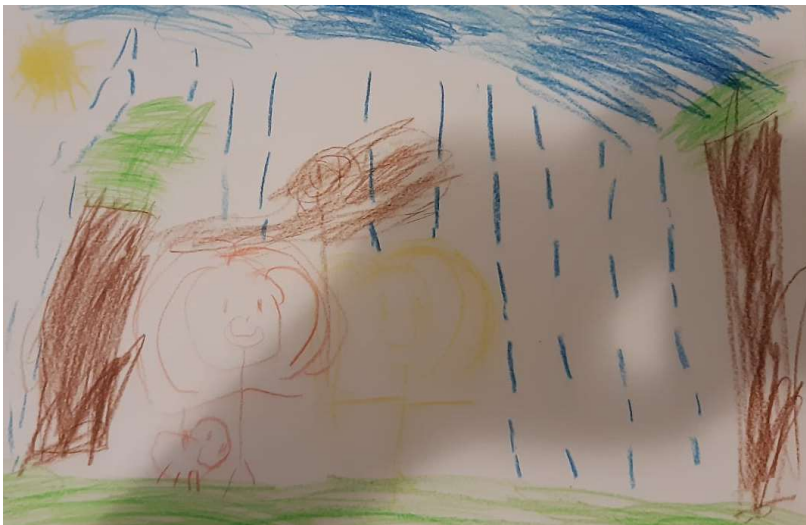
	f	%
1. Not littering	26	32.5
2. Not wasting water	18	22.5
3. Not polluting nature	14	17.5
4. Not starting a fire	10	12.5
5. Not polluting the sea	7	8.75
6. Not cutting the trees	5	6.25
Total	80	100

Considering the drawings made by children on "Perceptions of Environmental Protection", it was determined that most of the children (32.5%) mentioned "not littering" to protect the environment. This was followed by "not wasting water" (22.5%), "not polluting nature" (17.5%), "not starting a fire" (12.5%), and "not polluting the sea" (8.75%). It was also determined that the least mentioned theme was "not cutting the trees" (6.25%).

Examples of the drawings made by children regarding their perceptions of environmental protection were presented below.

**Drawing 1.** Drawing about “not littering”

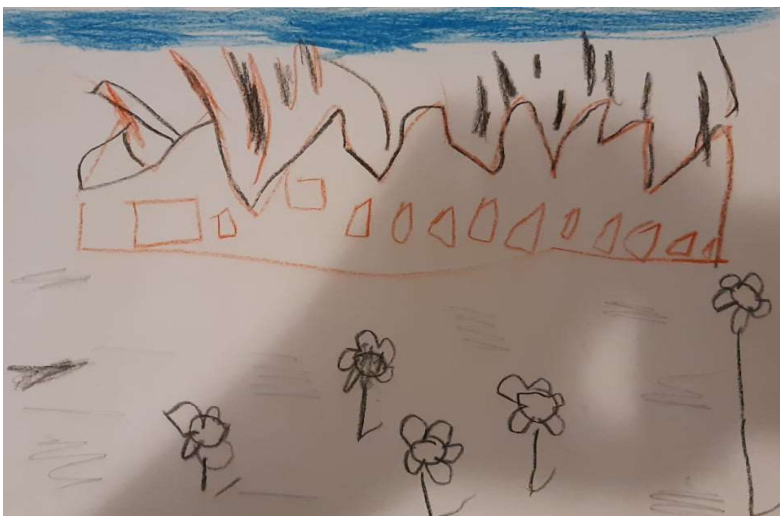
In Drawing 1, it was determined that C23 made a drawing about not littering. When he/she was requested to describe his/her drawing, he/she expressed that “Our environment will be polluted and germs will spread if we litter”.

**Drawing 2.** Drawing about “not wasting water”

In Drawing 2, it was determined that C25 made a drawing about the pouring rain. When he/she was requested to describe his/her drawing, he/she expressed that “All living things need water, rainwater cleans our environment and revitalizes our trees. We should use water carefully”.

**Drawing 3.** Drawing about “not polluting nature”

In Drawing 3, it was determined that C11 made a colorful drawing of nature. When he/she was requested to describe his/her drawing, he/she expressed that “All living things live in nature, we should love our nature, not pollute it, and protect it”.

**Drawing 4.** Drawing about “not starting a fire”

In Drawing 4, it was determined that C72 made a drawing of black flowers and fire rising to the clouds. When he/she was requested to describe his/her drawing, he/she expressed that he/she didn't like the smell of fire and fire polluted the sky and harmed the environment.

**Drawing 5.** Drawing about “not polluting the sea”

In Drawing 5, it was determined that C56 made a drawing of fishes in the sea. When he/she was requested to describe his/her drawing, he/she expressed that “The seas will be polluted and the fish will die if we litter I don’t want the fish to die”.

**Drawing 6.** Drawing about “not cutting the trees”

In Drawing 5, it was determined that C33 made a drawing of a tree larger than himself/herself. When he/she was requested to describe his/her drawing, he/she expressed



that "Trees are oxygen tanks. I love trees and I feel very sad when I see trees that are burned and cut".

### Evaluation of Drawings According to the 7R Model

To evaluate the second sub-objective of this study, the 7R model areas covered by the 6 perceptions of the children (Table 1) on protecting the environment were investigated. In this regard, not wasting water theme was evaluated under the reduce dimension while not littering, not polluting nature, not starting a fire, not polluting the sea, and not cutting the trees themes were evaluated under the respect dimension of the 7R model. The distribution of children's perceptions of environmental protection in terms of the 7R model was presented in Table 2.

**Table 2.** Findings Regarding the Children's Inclusion of Environmental Protection Methods within the Scope of the 7R Model

	f	%
1. Reduce	18	22.5
2. Reuse	0	0
3. Respect	62	77.5
4. Rethink	0	0
5. Reflect	0	0
6. Recycle	0	0
7. Redistribute	0	0
<b>Total</b>	<b>80</b>	<b>100</b>

As seen in Table 2, it was determined that 18 children (22.5%) made drawings within the scope of reduce dimension, and 62 children (77.5%) made drawings within the scope of respect dimension of the 7R model. It can be interpreted that the children included in the sample group of this study do not have a perception about protecting the environment in reuse, rethink, reflect, recycle, and redistribute dimensions of the 7R model.

## DISCUSSION AND CONCLUSION

This study aimed at investigating the perceptions of 5 years old children attending preschool education about protecting the environment through drawings. In line with the findings of this study, it was determined that the most common perception of children to protect the environment was "not littering". It was also determined that the children had different perceptions as "not wasting water", "not polluting nature", "not starting a fire", "not polluting the sea", and "not cutting the trees". It was also concluded that the children had a perception of protecting the environment only from these aspects with the drawings that included the dimensions of reduce and respect from the 7R model. It was determined that there were different studies in the literature with similar results. In a study conducted by Yanık and Bağcı-

Kılıç (2010) with primary school students, it was determined that students had the perception of not littering, using water carefully, not cutting trees, and using filters for smoke coming out of chimneys to protect the environment. In a study conducted by Ahi (2015), it was concluded that preschool children included chimney smoke among the factors that caused environmental pollution. In a study conducted by Haktanır and Çubuk (2001), the environmental perceptions of preschool children were examined in terms of various variables. In that study, it was concluded that the children had a low perception of the re-use of plastic bags that could be included in recycling. Düzenli et al. (2019) stated that children made drawings about garbage and waste. In studies carried out by Littledyke (2004) and Sadık et al. (2011), it was determined that children had perceptions about garbage and waste pollution. In interviews with the preschool teachers, Coşanay (2018) determined an increase in children's behaviors such as not littering, warning the ones who litter, respecting the other living things, the benefits of clean air, and the harms of polluted air, and the careful use of water. In a study investigating preschool children's perceptions of environmental pollution through drawings, Saz et al. (2020) stated that the children drew garbage cans and various wastes. This finding demonstrated that the children were aware of not littering to protect the environment within the scope of the respect dimension of the 7R model and is in parallel with the findings of this study.

It was also concluded that the children did not have a perception about some important concepts in environmental education as reuse, rethink, reflect, recycle, and redistribute dimensions. In a study they conducted, Kahrıman-Öztürk et al. (2012) investigated preschool children's opinions on sustainable development according to the 7R dimensions. As a result of that study, it was emphasized that the children in the sample group expressed their opinions about the dimensions of reduce, reuse, respect, and recycle but did not express any opinions about the dimensions of reflect, rethink, and redistribute. In the above-mentioned study conducted by Coşanay (2018), teachers stated that they observed only the behaviors related to respect, reduce and recycle dimensions in children who received environmental education. However, they did not state that they observed any behaviors related to reuse, rethink, reflect, and redistribute dimensions of the 7R model. Similarly, Saz et al. (2020) also determined that these dimensions were not included in the drawings of children. Therefore, this result can be interpreted as the children's lack of knowledge and awareness in these dimensions. Although Littledyke (2004) emphasized that children did not fully understand the meaning of the concept of environment, it was expressed in various studies that the environmental conditions affected children's perceptions of environmental pollution and environmental protection, the children perceived animate and inanimate objects and the problems they could observe concretely, and the children considered these situations independently of each other (Halmatov et al., 2012; Taşkın and Şahin, 2008; Saz et al., 2020). As a result of a study they conducted among preschool children in Poland, Grodzińska-Jurczak et al. (2006) revealed that children's attitudes towards the environment varied according to where they lived. Similarly, Pauw and Petegem (2013)

revealed that children who attended eco-schools exhibited more positive behaviors in terms of environmental values and behaviors than the children who did not attend such schools.

Therefore, it is emphasized that children's experiences of the environment were effective in shaping their perceptions about the environment (Saz et al., 2020). It was considered that the reason why the children included in this study did not have awareness in these areas may be because they did not have experience in this subject and that these subjects were not included in the education process. In fact, it was emphasized that environmental education provided for the children by different researchers in different sample groups had a positive effect on children's environmental awareness and attitudes towards the environment (Fisman, 2005; James and Bixler, 2010; Karimzadegan, 2015; Liefländer, 2015; Mallena-Barrazab et al., 2009). In addition to this, there were studies in the literature revealing that children's environmental perceptions were affected by variables such as gender, socioeconomic level, educational background of parents, and the awareness of teachers and parents (Chawla and Cushing, 2007; Loughland et al., 2002; Robertson, 2008; Uzun and Sağlam, 2007).

### **RECOMMENDATIONS**

The early childhood period is a period in which children have a natural curiosity towards the environment and children are intensely interested in this subject. This period can be defined as a critical period in creating environmental responsibility and awareness in children. Therefore, the right education provided for the children in these years contributes significantly to the children in becoming individuals at the desired level in all these areas. In this regard, the education processes provided for the preschool children about the environment should be planned very carefully and meticulously. Environmental education to be provided for the children should not only be limited to spaces like preschool classes or school gardens but also include various indoor and outdoor spaces a part of children's lives and education processes. In addition to this, it can also be recommended to ensure that the children have perceptions about reuse, rethink, reflect, recycle, and redistribute dimensions of the 7R model for sustainable environmental education. In this regard, the awareness of preschool teachers about this subject should be raised. Preschool teachers should be provided with theoretical and practical knowledge in these fields through the environmental education courses of undergraduate programs. In addition to this, it can be recommended that preschool teachers participate in in-service training prepared on this subject.

In future studies, children's perceptions of environmental protection can be investigated with different variables and by using various research methods and techniques. This study was carried out in the Nicosia district of TRNC. It can be recommended to carry out similar studies in sample groups including Turkey and different countries and to deal with cultural differences in this regard through comparative studies.

### Authors' Note

This article is an extended version of the oral presentation at the 15th National Preschool Teachers Student Congress, organized by Akdeniz University in Antalya on September 2-3, 2021.

### REFERENCES

- Ahi, B. (2015). *Okul öncesi eğitim programına kaynaştırılan çevre eğitimi programının çocukların "çevre" kavramı hakkındaki zihinsel model gelişimine etkisi.* (Unpublished Doctoral Thesis, Gazi University).
- Aykaç, N. (2012). İlköğretim öğrencilerinin resimlerinde öğretmen ve öğrenme süreci algısı. *Eğitim ve Bilim*, 37(164), 298-315.
- Basile, C. G., & White, C. (2000). Respecting living things: Environmental literacy for young children. *Early Childhood Education Journal*, 28(1), 57-61.
- Basile, C. G. (2000). Environmental education as a catalyst for transfer of learning in young children. *The Journal of Environmental Education*, 32(1), 21-27.
- Boeve-De Pauw, J.& Van Petegem, P. (2012). Cultural differences in the environmental worldview of children. *International Electronic Journal of Environmental Education*, 2(1), 1-11.
- Buldur, A. (2018). *Çoklu ortamlar ile desteklenen çevre eğitimi programının çocukların çevreye yönelik tutum ve farkındalıklarına etkisinin incelenmesi.* (Unpublished Doctoral Thesis, Gazi University).
- Carter, D. A. (2016). Nature-based social-emotional approach to supporting young children's holistic development in classrooms with and without walls: The social-emotional and environmental education development (SEED) framework. *International Journal of Early Childhood*, 4(1), 10.
- Chawla, L., & Cushing, D.F., (2007). Education for strategic environmental behaviour. *Environmental Education Research*, 13(4), 437-452.
- Cohen, L., Manion, L. & Morrison, K. (2007). *Research methods in education*, (6th ed.). Taylor & Francis eLibrary.
- Çoşanay, B. (2018). *Okul öncesi dönem çocuklarının (beş-altı yaş) çevresel tutumlarının çocuk ve öğretmen değişkenleri açısından incelenmesi.* (Unpublished Master Thesis, İnönü University).
- Duran, M. (2021). Perception of preschool children about environmental pollution. *Journal of Education in Science, Environment and Health (JESEH)*, 7(3), 200-219.
- Düzenli, T., Alpak, E. M. & Yılmaz, S. (2019). Children's imaginations about environment and their perceptions on environmental problems. *Fresenius Environmental Bulletin*, 28, 9798-9808.
- Edwards, S. & Cutter-MacKenzie, A. N. (2011). Environmentalising early childhood education curriculum through pedagogies of play. *Australian Journal of Early Childhood*, 36(1), 51-59.

- Fisman, L. (2005). The effects of local learning on environmental awareness in children: An empirical investigation, *The Journal of Environmental Education*, 36(3), 39-50.
- Grodzińska-Jurczak, M., Stepska, A., Nieszporek, K. & Bryda, G. (2006). Perception of environmental problems among pre-school children in Poland. *International Research in Geographical and Environmental Education*, 15(1), 62-76.
- Gülay, H., & Öznacar, M. D. (2010). *Okul öncesi çocukları için çevre eğitimi etkinlikleri*. Pegem Akademi Yayınları.
- Gülay-Ogelman, H. & Güngör, H. (2015). Türkiye'deki okul öncesi dönem çevre eğitimi çalışmalarının incelenmesi: 2000-2014 yılları arasındaki tezlerin ve makalelerin incelenmesi . *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* , 12(32) , 180-194
- Güler-Yıldız, T. (2017). Çevre eğitimi. İçinde B. Akman, G. Balat Uyanık ve T. Güler Yıldız (Eds.), *Okul öncesi dönemde fen eğitimi* (181-201). Anı Yayınları.
- Günindi, Y. (2012). Environment in my point of view: Analysis of the perceptions of environment of the children attending to kindergarten through the pictures they draw. *Procedia- Social and Behavioral Sciences* 55, 594-603.
- Haktanır, G. & Çubuk, B. (2001). Okul öncesi dönemdeki çocukların çevre algıları. 4. Fen Bilimleri Kongresi-2000 Bildiri Kitabı, (pp. 76-81), Milli Eğitim Basımevi.
- Halmatov, M., Sariçam, H. & Halmatov, S. (2012). Okul öncesi eğitimdeki 6 yaş çocukların çizdikleri çevre resimlerinin ve çevre kavramını algılayışlarının farklı değişkenlere göre incelenmesi. *Uluslararası Sosyal Bilimler Eğitimi Dergisi*, 2(1), 30-44.
- James, J. J. & Bixler, D. R. (2010) Children's role in meaning making through their participation in an environmental education program. *The Journal of Environmental Education*, 39(4), 44-59.
- Kahriman-Öztürk, D., Olgan, R., & Güler, T. (2012). Preschool children's ideas on sustainable development: How preschool children perceive three pillars of sustainability with the regard to 7R. *Educational Sciences: Theory and Practice*, 12(4), 2987- 2995.
- Karimzadegan, H. (2015). Study of environmental education on environmental knowledge of preschool age children in Rasht city, Iran. *Biological Forum-An International Journal* 7(1), 1546-1551.
- Kıçoğlu M., Gürbüz H., Sülün A., Alaş A. & Erkol M. (2010). Environmental literacy and evaluation of studies conducted on environmental literacy in Turkey. *International Online Journal of Educational Sciences*, 2(3), 772-791.
- Liefländer, A. K. (2015). Effectiveness of environmental education on water: Connectedness to nature, environmental attitudes and environmental knowledge. *Environmental Education Research*, 21(1), 145-146.
- Littledyke, M. (2004) Primary children's views on science and environmental issues: examples of environmental cognitive and moral development. *Environmental Education Research*. 10(2), 217-235.

- Loughland, T., Reid, A. & Petocz, P. (2002). Young people's conceptions of environment: A phenomenographic analysis. *Environmental Education Research*, 8(2), 187-197.
- Mallena, I. R., Barraza, L., Bodenhornc, L., & Garciad-Reyes, V. (2009). Evaluating the impact of an environmental education programme: An empirical study in Mexico. *Environmental Education Research*, 15(3), 371-387.
- O'Malley, S. (2015). The relationship between children's perceptions of the natural environment and solving environmental problems. *Policy & Practice: A Development Education Review*, 21, 87-104.
- OMEP. (2011). Education for sustainable development in the early years. [http://old.worldomep.org/files/1343134\\_wa-report-omep-esd-in-practice-2011-1-.pd](http://old.worldomep.org/files/1343134_wa-report-omep-esd-in-practice-2011-1-.pd)
- Öztürk-Samur, A. (2018). A comparison of 60-72 month old children's environmental awareness and attitudes: TEMA Kids Program. *International Electronic Journal of Elementary Education*, 10(4), 413-419.
- Palmer, J. A., Grodzinska-Jurczak, M., & Suggate J. (2003). Thinking about waste: Development of English and Polish children's understanding of concepts related to waste management. *European Early Childhood Education Research Journal*, 11(2), 117-139.
- Pauw, B. J. & Petegem, V.P. (2013). The effect of eco-schools on children's environmental values and behavior. *Journal of Biological Education*, 47(2), 96-103.
- Phenice, L. A., Griffore, J. P. (2003) Young children and the natural world. *Contemporary Issues in Early Childhood*. 4(2), 167-171
- Robertson, J. S. (2008). Forming preschoolers' environmental attitude: lasting effects of early childhood environmental education. (Unpublished Master Thesis). Royal Roads University,
- Sadik, F., Çakan, H. & Artut, K. (2011) Analysis of the environmental problems pictures of children from different socio-economical level. *Elementary Education Online*, 10(3), 1066-1080.
- Saz, B., Osmanpehlivan, E., Demir, İ. & Bay, D. N. (2020). Okul öncesi çocuklarının çevre kirliliği algısının incelenmesi. *Anadolu Üniversitesi Eğitim Fakültesi Dergisi*, 4(3), 191-215.
- Shepardson, D. P. (2005). Student ideas: What is an environment? *The Journal of Environmental Education*, 36(4), 49-58.
- Strafe, S. J. (2012). Children's environmental concerns: Expressing ecophobia. *The Journal of Environmental Education* 43(1), 37-54.
- Şimşek-İşliyen, F. & İşliyen, M. (2015). Çocukların medya algısının resimler üzerinden analizi. *Global Media Journal TR Edition*, 5 (10). 271-287.
- Taşkın, Ö. & Şahin, B. (2008). Çevre kavramı ve altı yaş okul öncesi çocuklar. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, 1(23), 1-14.
- Tilbury, D. (1994) The international development of environmental education: A basis for a teacher education model? *International Journal of Environmental Education and Information*, 13(1), 1-20.

- Uzun, N. & Saęlam, N. (2007). The effect of the course "Man and Environment" and Voluntary Environmental Organizations on secondary school students' knowledge and attitude towards environment. *Hacettepe University Journal of Education*. 33, 210–218.
- Yardımcı, E. & Kılıç, G. B. (2010) Children's views of environment and environmental problems. *Elementary Education Online*. 9(3). 1122-1136.
- Yayla-Ceylan, Ş., & Ülker, P. (2014). Okul öncesi eğitim çocuklarında çevre eğitimi neden önemlidir. İçinde H. Gülay Ogelman (Ed.), *Çocuk ve çevre* (ss. 37-58). Eğitim Kitap.
- Yıldırım, A. & Şimşek, H. (2011). *Sosyal bilimlerde nitel araştırma yöntemleri*. Seçkin Yayınları.