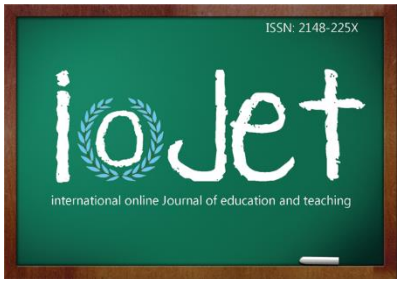

Ozkan, B. (2021). The effect of drama-based activities on environmental sustainability behaviors of 60-72 months-old children. *International Online Journal of Education and Teaching (IOJET), 8*(3).1486-1496.

Received : 10.03.2021
Revised version received : 12.05.2021
Accepted : 15.04.2021

THE EFFECT OF DRAMA-BASED ACTIVITIES ON ENVIRONMENTAL SUSTAINABILITY BEHAVIORS OF 60-72 MONTHS-OLD CHILDREN

(Research article)

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Abstract

The study aimed at examining the effects of drama-based activities on environmental sustainability behaviors of preschool children aged 5-6. The participants of the study were composed of 20 volunteer children selected via convenience sampling model at a kindergarten in Kütahya in 2018-2019 school year. Out of 20 participating children, 10 were in the experimental group, and the other 10 were in the control group. The activities for the experimental group were prepared by the researcher, and implemented through drama method 2 days in a week. In the control group, the activities were also prepared by the researcher in accordance with the Preschool Curriculum introduced by the Ministry of Education (MoNE) in 2013. Both activities in both groups lasted 8 weeks in total, and 16 activities were conducted in the experimental group. The data were collected via the "*Environmental Sustainable Behaviors Evaluation Scale for 60-72 Months Old Children"* developed by Özkan, Tuğluk and Yiğitalp (2018), and analyzed using Mann Whitney U test, Wilcoxon test, and Kolmogorov Smirnov test. The results revealed that, there was a significant difference between the experimental group's pre-test and post-test scores, and between the post-test scores of the experimental and the control groups on behalf of the experimental group.

Keywords: Sustainability, environmental education, drama, pre-school education

1. Introduction

Pre-school period, which is the basis of human life, has a critical importance in terms of gaining many skills and developing personal behaviors. During this period, children are most open to learning as they are curious and questioning. Preschool period is undoubtedly the most important period to start environmental education. Issues such as environmental education, environmental awareness, sustainability are learned first in the family and then at school. According to Ünal (2011), if there is no education in the family, the importance of the school increases even more. It should be ensured that the education system in question and its basic elements, teachers and students are made aware of this purpose in the best possible way. Awareness raising is important in order to achieve positive improvements in individuals' behavior and gains in environmental protection.

Sustainability education in early childhood forms the basis for the formation of desired behaviors and attitudes in the early period (Güler Yıldız & Korkmaz, 2017). Sustainability education is an approach that will contribute to the development of a more sustainable economy and environmental formation of students and consider future generations (Bell, 2016). Environmental sustainability includes improving and protecting ecological environmental resources (Siraj-Blatchford, Smith & Samuelsson, 2010). To ensure sustainability, "3-R's" are as in the following;

- Reduce
- Reuse, and
- Recycle (Bener & Babaoğul, 2008).

Sustainability is also an important issue to address current and future issues. Although it is the duty of every segment of the society in terms of sustainability, educators have more responsibility (Davis, 2010). The preschool teacher should have a role to act, research, question and support with the children while integrating the preschool curriculum with the processes related to sustainability (Ahi, 2021).

Studies on environmental education attract the attention of children. Children enjoy observing the environment, asking questions, and doing research to find answers to their questions. One of the most used methods in the preschool period is drama. In the drama, the child internalizes the role he / she plays, has fun while playing, and learns at the same time. Since drama offers children the opportunity to learn by experiencing, it ensures that learning is permanent. Therefore, it should be preferred in environmental education activities.

Drama is an entertaining game, process and group interaction, questioning and evaluation process, activities that support children's imagination and creativity, enable them to learn through experience, have specific goals, and are based on motor movements they perform with their teachers in groups (Yıldız, 2016; Cottrell, 1987; Önder , 2010). When the literature is reviewed, there are several studies showing the effects of drama on many skills in preschool children. Ölekli (2009) and Erdoğan (2006) concluded that drama education positively affects the mathematics skills of preschool children. Çilengir Gültekin (2019), in her study investigating the effect of the drama-based STEM curriculum on the scientific process and creative thinking skills of 6-year-old children, reveals that the drama-based curriculum is effective in providing children with creative thinking and scientific process skills. Değirmenci Bahar (2020), in his study examining the effect of drama-based preschool education on the problem solving and social skills of children, stated that the drama-based activities had a significant effect on the increase in the problem solving skills scores of the children in the experimental group. Özkan and Tuğluk (2018) reached the conclusion that drama-based mathematics activities improve scientific process skills in children.

In the preschool curriculum, drama, both as a method and as a type of activity, is very effective in learning because it is an approach that offers the opportunity to learn by living and makes the child active. The drama method was preferred in this study, based on the results of the research in the literature and the results obtained from activities with children. Although there are many studies about drama in the literature, there are few studies based on giving environmental activities through drama. This reveals the importance of research.

The research question of the study was formulated as ***"What is the effect of drama-based activities on environmental sustainability behaviors of 60-72 months-old children?"***

2. Method

2.1. Research design

In the study, pre-test, post-test experimental research design was adopted. The following table illustrates the research design of the study (See Table 1).

Table 1. *Research design*

Groups	Registration	Pre-test	Implementation	Post-test
Experimental	R	O1	Drama–based	O3
Control	R	O2	MoNE program	O4

R: Randomly
O1 ve O3: Pre-test and Post-test results of the Experimental group
O2 ve O4: Pre-test and Post-test results of the Control group

2.2. Participants

The participants of the study were composed of 20 volunteer children selected via convenience sampling model at a kindergarten in Kütahya in 2018-2019 school year. Out of 20, 10 of the participant children were in the experimental group, and the other 10 were in the control group after consent forms were obtained from their parents and teachers.

Table 2 below shows the gender of children in each group.

Table 1. *Gender distribution of children in each group*

Gender	Experimental G.	Control G.
	N	N
Girl	5	5
Boy	5	5
Total	10	10

As it is seen, in each group there were 5 girls and 5 boys.

2.3. Data collection tool

The data of the study were collected using the *"Scale of Sustainable Behaviors Towards the Environment for 60-72 Months Old Children"* developed by Özkan, Tuğluk and Yiğitalp (2018). The scale consists of two sub-dimensions, awareness and consciousness, and 20 items. The reliability coefficient of the scale is Cronbach alpha = .92 (Özkan, Tuğluk&Yiğitalp, 2019).

2.4. Analysis of the data

The data were analyzed via SPSS-20 program. In terms of statistical technique; the Mann Whitney U test, one of the non-parametric tests, was used to determine the difference between the experimental group-control group pre-test and post-test scores, and the Wilcoxon test, one of the non-parametric tests, was used to determine the differences between the experimental group pre-test and post-test scores. Before statistical analysis, the normality of the distribution was checked using the Kolmogorov Smirnov test, and it was observed that it did not show a normal distribution.

3. Findings

Findings of the study are presented using tables as in the following:

Table 3. *Mann Whitney U test results showing whether the pre-test scores obtained from the awareness sub-dimension differ between children in the experimental and control groups*

Groups	N	S.O	S.T	U	p
Experimental	10	10,85	108,50	46,50	,771
Control	10	10,15	101,50		

Table 3 shows that the scores of the experimental and control groups from the awareness sub-dimension did not differ (p> 0.05). In other words, the children in the experimental and control groups are close to each other before the implementation.

Table 4. *Mann Whitney U test results showing whether the pre-test scores obtained from the consciousness sub-dimension differ between children in the experimental and control groups*

Group	N	S.O	S.T	U	P
Experimental	10	10,60	106,00	49,00	,935
Control	10	10,40	104,00		

Table 4 shows that the scores of the experimental and control groups from the sub-dimension of consciousness did not differ (p> 0.05). In other words, the children in the experimental and control groups are close to each other before the implementation.

Table 5. *Mann Whitney U test results showing whether the pre-test scores obtained from the whole scale differ between children in the experimental and control groups*

Group	N	S.O	S.T	U	P
Experimental	10	10,70	107,00	48,000	,875
Control	10	10,30	103,00		

Table 5 shows that the scores of the experimental and control groups from the whole scale did not differ (p> 0.05). In other words, the children in the experimental and control groups are close to each other before the implementation.

Table 6. *Results of the Wilcoxon Test about the pre-test and post-test scores of the children in the experimental group according to the awareness sub-dimension*

Pre-test-Post-test	N	S.O	S.T	Z	P
Negative line	0	0,00	0,00		
Positive line	9	5,00	45,00	-2,69	,007
Equal	1				

The result of the Wilcoxon test conducted to determine the difference between the pre-test and post-test scores shows that there was significant difference between the scores of the children in the experimental group according to the awareness sub-dimension (p <0.05). This result shows that the program applied to the experimental group was effective.

Table 7. *Results of the Wilcoxon Test about the pre-test and post-test scores of the children in the experiment group according to the consciousness sub-dimension*

Pre-test-Post-test	N	S.O	S.T	Z	P
Negative line	0	,00	,00		
Positive line	8	4,50	36,00	-2,59	,009
Equal	2				

As a result of the Wilcoxon test conducted to determine the difference between the pre-test and post-test scores of the children in the experimental group in the consciousness sub-dimension, a significant difference was found between the scores (p <0.05). This result shows that the program applied to the experimental group was effective.

Table 8. *Results of the Wilcoxon Test showing whether the pre-test and post-test scores of the experimental group from the whole scale differentiated or not*

Pre-test-Post-test	N	S.O	S.T	Z	P
Negative line	0	,00	,00		
Positive line	9	5,00	45,00	-2,69	,007
Equal	1				

As a result of the Wilcoxon test conducted to determine the difference between the pre-test and post-test scores of the children in the experimental group from the whole scale, a significant difference was found between the scores (p <0.05). This result shows that the applied program was effective.

Tablo 9. *Results of the Wilcoxon Test about the pre-test and post-test scores of the children in the control group according to the awareness sub-dimension*

Pre-test-Post-test	N	S.O	S.T	Z	P
Negative line	2	3,00	6,00		
Positive line	2	2,00	4,00	-3,78	,705
Equal	6				

As a result of the Wilcoxon test conducted to determine the difference between the pre-test and post-test scores of the children in the control group according to the awareness sub-dimension, there was no significant difference between the scores (p> 0.05).

Table 10. *Results of the Wilcoxon Test showing whether the pre-test and post-test scores of the children in the control group differentiated according to the Consciousness Sub-Dimension*

Pre-test-Post-test	N	S.O	S.T	Z	P
Negative line	5	3,50	17,50		
Positive line	1	3,50	3,50	-1,63	,102
Equal	4				

As a result of the Wilcoxon test conducted to determine the difference between the pre-test and post-test scores of the children in the control group in terms of the consciousness sub-dimension, no significant difference was found between the scores (p>, 005).

Table 11. *Results of the Wilcoxon Test about the pre-test and post-test scores of the children in the control group according to the Whole Scale*

Pre-test-Post-test	N	S.O	S.T	Z	P
Negative line	5	3,20	16,00		
Positive line	2	6,00	12,00	-3,47	,729
Equal	3				

The Wilcoxon test conducted to determine the differences between the pre-test and post-test scores of the children in the control group in terms of the whole scale shows that there was no significant difference between their scores (p> 0.05).

Table 12. *Mann Whitney U test results showing whether the post-test scores obtained from the awareness sub-dimension differ between children in the experimental and control groups*

Group	N	S.O	S.T	U	p
Experimental	10	14,60	146,00	9,00	,001
Control	10	6,40	64,00		

There is a significant difference between the post-test scores of the children in the experimental and control groups according to the awareness sub-dimension ($p < 0.05$). This difference is in favor of the experimental group. In other words, it can be said that the program applied to the experimental group was effective.

Table 13. *Mann Whitney U test results about the post-test scores of the children in the experimental and the control groups in terms of the consciousness sub-dimension*

Group	N	S.O	S.T	U	p
Experimental	10	14,35	143,50	11,50	,003
Control	10	6,65	66,50		

Table 13 illustrates that there is a significant difference between the post-test scores of the children in the experimental and control groups in terms of the consciousness sub-dimension ($p < 0.05$). This difference is in favor of the experimental group. In other words, it can be said that the program applied to the experimental group was effective.

Table 14. *Mann Whitney U test results about the post-test scores of the children in the experimental and control groups according to the whole scale*

Group	N	S.O	S.T	U	p
Experimental	10	14,70	147,00	8,00	,001
Control	10	6,30	63,00		

The table shows that there is a significant difference between the post-test scores of the children in the experimental and control groups according to the whole scale ($p < 0.05$). This difference is in favor of the experimental group. In other words, it can be said that the program applied to the experimental group was effective.

4. Discussion, Conclusion and Suggestions

As a result of the research, it was found that the pre-test scores of the experimental and control groups did not differ, there was a significant difference between the pre-test and post-test scores of the experimental group, there was no significant difference between the pre-test and post-test scores of the control group. It was observed that there was a significant difference between the scores. According to these results, it can be said that the drama-based environmental curriculum applied to the experimental group was effective. There are studies

in the literature on pre-school environmental education. The findings of these studies reveal the importance of environmental education in the preschool period.

In another study in which drama was used as a method, Tanrıverdi (2012) aimed to determine the effect of education given with creative drama method on environmental awareness of preschool children. It was observed that the creative drama activities created with the environmental education subjects applied in the experimental group significantly increased the knowledge and awareness levels of the children about the environment. In another study, Aydın and Aykaç (2016) worked with 4-year-old children and stated that creative drama had a positive effect on environmental awareness in this age group. In these studies, drama was used as a method in environmental curriculums, similar to our research.

Cengizoğlu (2013), in his study on the curriculum for sustainable development developed for preschool children examines children's perceptions of the human-environment relationship in accordance with deforestation, biological diversity and climate change, children who did not see human beings as a part of the environment and sustainable practices before participating in the program, After joining, perspectives have evolved about deforestation, biodiversity and the impact of climate change on each other. Another important finding of the research is that the children participating in the program presented their own solutions for a sustainable future. Karimzadegan (2015) concluded that the environmental education increased children's attitudes towards the environment and their knowledge of the environment. In his research, Ahi (2015) examined the effect of the environmental education, which was integrated into the preschool curriculum, on the development of mental models of preschool children about the concept of environment, concluded that the applied program was effective. Liefländer (2015), in his study examining the effectiveness of the environmental education curriculum, concluded that the environmental education has an effect in the short term for children aged 2 years. Yılmaz, Yılmaz Bolat, and Gölcük (2020) stated in their study in which they investigated the attitudes towards the environment, environmental protection, recycling, consumption habits and living habits of preschool children, and that the four-week environmental curriculum improved children's attitudes towards the environment positively.

In line with the findings of the study, the following suggestions can be put forward for the researchers;

• Educators may be suggested to use the drama method in environmental education activities with preschool children.

• Environmental education has been a compulsory course in the preschool teacher education program since 2018. It may be suggested to support teachers who have not taken the environmental education course, or any training on environmental education and sustainability issues.

• Drama method was utilized in this study. The effectiveness of the preschool curriculum in which different methods are used for teaching environmental sustainability behaviors can be examined.

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