

Increasing Environmental Awareness of Kindergarten Children by Using Puppets

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ABSTRACT

This study aims at investigating the effect of using puppets to raise Kuwaiti kindergarten children's environmental awareness. A closed-ended questionnaire together with interviews have been utilized by the researchers for collecting the data. The sample of the study consisted of three groups (two experimental groups, and one control group). Findings showed that Group 1 (using puppets and stories) has scored higher compared to Group 2 (using stories only) and Group 3 (the control group). Also, the results disclosed that age and gender had no effects upon the children's environmental awareness. However, teachers' interviews unfolded that children, throughout their activities, behaved positively towards the environment. As such, the children's interviews showed that they enjoyed retelling the same stories when using puppets. In conclusion, the study came out with some recommendations signifying that kindergarten teachers are urged to use non-digital media, such as puppets and stories, to enhance positive children's learning process. Further, the environmental education program, with all its dimensions (knowledge, attitudes, and skills) should be a required course offered at teachers' preparation institutions. The environmental education program at kindergartens' curricula must emphasize and acquire children knowledge, attitudes, and skills.

Introduction

It is well asserted that early childhood education of high quality is the first step to a sufficient education for sustainable development in order to cope with the changing environment (Davis, 2015; Davis and Eliot, 2014). Environmental issues have been first introduced in the 1950's by Racheal Carson (See Carson, 2002). The Tbilisi Declaration

in 1978 defined environmental education as "a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action" (Tbilisi Declaration, 1978). Although many countries such as Kuwait, Turkey, and Slovenia, require that it be taught at all grade levels, environmental education has not become an integral part of school curricula (Bartosh, 2003). The idea of keeping the environment clean is attracting the attention and interest of most people who wish to ensure that their children and future generations enjoy clean and healthy life and world. One reason that drives decision makers, namely, educationalist, policy makers and curriculum planners to implement environmental education in school curricula is that this subject involves thinking and acting. Additionally, Sabo (2010) emphasizes the interrelations between human and natural systems and encourages the development of environmental awareness, understanding of environmental problems, and development of critical thinking and problem-solving skills.

Statement of the Problem

Accordingly, it is important to assess the impact of using puppets for story-telling in Kuwaiti kindergartens' children aged four and a half to six years old. Environmental education was introduced in Kuwaiti kindergartens in 2000's. The Developmentally Appropriate Approach (Bredekamp & Copple 1997; Flee, 1995), though outdated, was only implemented in Kuwait in the 2000's.

The environmental education program includes two aspects, namely, environmental knowledge and environmentally positive attitudes. Teachers in Kuwaiti kindergartens have attempted to implement different methods of instruction to reinforce children's environmental education, such as verbal, visual, and practical methods. Based on the researchers' visits to different Kuwaiti kindergartens, as a requirement in their teaching syllabus, and on the teachers' comments on the methods used, all of these methods unfortunately failed to promote positive attitudes in the children and focused only on environmental knowledge. Therefore, the researchers plan in this paper to study the importance of using puppets to enhance children's environmental awareness.

Objectives of the study

The main objective of this study is to investigate the effect of puppets as a pedagogical device in increasing children's environmental awareness. The study will also attempt to investigate if any age or gender differences among the subjects of the study exist.

To fulfill the research objectives, the researchers used puppets of environmental characters and story-telling as young children usually enjoy puppets and story-telling.

Research questions

The research questions to be investigated are as follows:

- 1 - Do puppets increase children's environmental awareness?
- 2 - Are there any significant differences among the groups regarding age and gender?

The Importance of the Study

For many years educational researches provided schools' curriculum with different ways and methods which increases the environmental awareness among young children, so do this study by using puppets with environmental characters may give children the environmental knowledge and attitudes and increase their positive behaviors toward the environment.

Literature Review & Theoretical Framework

In the context of Environmental education, children's environmental awareness began to attract the interest of scholars. The use of puppets as a pedagogical device to increase children's awareness began to be researched. Many studies have shown that the use of puppets increases children's cognitive thinking skills. Margioridou and Takantza (1992), for example, used puppets with children who were aged three-and-a-half to four years to demonstrate how a piece of wool undergoes different phases to become a cloth product. Puppets may also increase children's reading skills (Shepherd and Koberstein, 1989; Peck and Virkler, 2006) and math and science conceptualization skills (Henna, 1996; Simon, Naylor, Keogh, Maloney & Downing, 2008). Ogelman (2012) claimed that using soft-stuffed puppets in indoor/outdoor activities significantly enhances children's environmental awareness.

Moreover, English and Machin (2005) believed that when puppets, such as Story Sack, are used to tell stories, play games, and engage in other activities, they are useful in promoting children's environmental knowledge. Puppets may also be used with young children with special needs in integrated classrooms to develop children's environmental knowledge and attitudes (Servizzi, 2008; Snart & Maguire, 1986; Sweedan, 2004). Finally, several studies have provided evidence of the impact of pro-environmental education on children's environmental knowledge and attitudes (Hulya, 2011; Laza, Loterean, Pintea, & Zeic, 2009; Walsh-Daneshmandi & MacLachlan, 2006).

To show how the use of puppets is important as a pedagogical device, (Keogh et al., 2008) conducted a case study on primary students taking science classes to see if the use of hand-held puppets would help teachers implement changes to the nature of their class discourse. Data were gathered from groups of teachers who observed demonstration lessons. Teachers responded positively to the demonstration lessons and engaged in significant professional dialogue about the use of puppets.

The research concluded that the use of puppets has a significant impact on children's engagement and motivation. In an educational setting, (Korosec, 2013) investigated the views of preschool and primary teachers regarding the use of puppets. The paper aimed at finding how often teachers use puppets in classroom activities and whether they are fully aware of the importance of using puppets in several aspects, such as communication, socialization, creativity and curricular goals. Results showed that preschool and primary school teachers expressed a positive opinion. They not only claimed that the use of puppets improved communication and socialization in a classroom but they were also aware of the positive effect of puppet use on the development of children's imagination and creativity. Unfortunately, the paper claims that teachers rarely use them in class.

Environmental awareness, although essential to good citizenship, is not always a prominent feature of educational programs in preschools or primary schools. However, many studies have claimed that different tools may be used to promote children's environmental awareness (knowledge and attitudes). The results of Al Malt's (2006) study, for example, ascertained that dramatic plays affect children's environmental awareness. Children develop environmental awareness either by really taking

acting roles in dramatic plays, or watching other people act. They may also develop environmental awareness by participating in group discussions after playing or watching the plays. Additionally, games and toys also have a strong effect on children's environmental awareness (Al Rafae, 2000) as do art projects (Al Mogaiseeb, 2007; Kumara, 2008).

Lee & Ma (2006) provided a description of a university-kindergarten partnership project with teachers in four kindergartens to participate in four three-hour workshops and then develop their own school-based environmental programs. The four teaching themes of the program were animals, plants, food, and Green Angels. Powers, (2004) conducted a program evaluation of a forestry field visit for second grade students. Results revealed the fact that children who participated in the field trip showed positive attitudes towards environmental awareness. English & Machin, (2005) described community's attempts to raise the knowledge and awareness of environmental issues of early years' pupils through the use "Environmental Story Sack". A Story Sack is a large cloth bag containing a favorite children's book with supporting materials to stimulate language activities and make reading a memorable and enjoyable experience. The results showed that reception year pupils' responses scores to questions about the process of waste management and recycling did, in fact, rise after using the activities provided by the sack.

Drama is one of the veritable tools that can be utilized as part of the enormous effort required to reverse the environmental degradation of the world (Lester, 1991). Nda (2012), for example, indicated that children would develop the possibility of environmental awareness and maintain environmental responsibility, if they are inculcated with environmental consciousness at an early age. The paper proposes the utilization of drama as the methodology in imparting lasting lessons on the environment on the young persons, especially primary levels of formal education. Gales (2008) conducted a research aiming at investigating how drama works practically and the effects it has and what value it holds in environmental education, in a school setting through various stakeholders' eyes. Data were accessed directly through spending time at the school. Interviews with teachers and stakeholders were carried out and the results were analyzed qualitatively and quantita-

tively. The results found that stakeholders were receptive to the notion of using drama to deliver environmental education, and that drama shows great potential for effective environmental education.

Some studies have shown that there were no significant differences between girls and boys in their attitudes toward the environment (Al Mogaiseeb, 1428 H; Evans et al., 2007; Laza et al., 2009). Other researchers claimed that children with highly educated parents showed positive attitudes toward the environment but that these differences were not significant. Hulya's (2011) results, when investigating variables such as age and socio-economic status, showed that there were no significant differences.

Methodology

This study is a quasi-experimental study. Both qualitative, and quantitative research methods were used. A quantitative method was used to investigate the impact of using environmental characters' puppets in increasing children's' environmental awareness. In this respect, pre/post tests were applied. To verify the quantitative results, a qualitative method was used thereafter. A descriptive analysis (frequency, mean, and standard deviation), t-test, and one-way ANOVA were used to answer the study questions.

Terminology

Environmental Awareness: covers the following three aspects in common: environmental knowledge, environmental attitudes and environmental actions (Zecha, 2010).

Puppets: "A small figure of a person or an animal, having a cloth body and hollow head, designed to be fitted over and manipulated by the hand" (<http://www.thefreedictionary.com/puppets>).

Kindergarten children: Four to 6 year's old children enrolled in kindergarten schools.

Participants

The sample of this study ultimately comprised 69 children and six teachers; two teachers for each classroom. In Kuwaiti kindergarten, each classroom is usually supervised by two teachers. Kindergartens in Kuwait begin accepting children at the age of three-and-a-half years. Kuwaiti kindergartens is 2-year duration, which are known as levels,

where children in KG1 range from three-and-a-half to four and a half years old, whereas children in KG2 are aged four-and-a-half to six years old. Hence, the researchers believed that it was wiser to choose KG2, since KG1 children were new to school settings and they were not prepared emotionally to interact with the researchers.

One kindergarten was selected randomly from the Hawalli District in the State of Kuwait. Three classrooms from level 2 were randomly selected from this kindergarten and were divided into three groups. Group 1 is an experimental group where the teachers used puppets and read stories. In group 2, the teachers read stories (the same as in group 1) without using puppets. Group 3 is the control group where the teachers followed the regular program that was assigned by the school. The teachers in the three groups have obtained bachelor degrees in early childhood education and have more than five years of teaching experience. Table 1 below shows the target sample distribution.

Table (1)
Sample Distribution

Group	Total children	Male	Female
1	24	11	3
2	22	10	2
3	23	11	12
Total	69	32	37

Materials

Puppets: Hand-held puppets were made by student teachers (with a kindergarten- and primary-level focus) as a required assignment (the course was taught by one of the researchers). The puppets were approximately 40 cm long, and each puppet introduced a different character, such as a human, plant, animal, and other characters that relate to environmental issues. **Stories:** Each story discussed one of the following environmental issues:

- 1 - The importance of water in our lives and the necessity to protect it as a main resource.
- 2 - The importance of recycling.

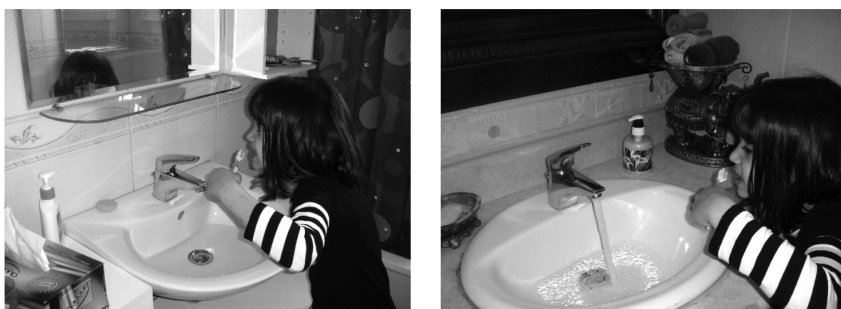
- 3 - The benefits of trees.
- 4 - Factories and air pollution.
- 5 - Sound pollution.
- 6 - Sorting trash items in different baskets.
- 7 - Keeping camping areas clean.
- 8 - Keeping beaches clean.
- 9 - Taking care of wild animals; and Taking care of pets.

Instrument

The tools for this research consisted of a questionnaire administered to the children participating in the experiment together with interviewing the same children and the teachers who also were willing to participate in the experiment.

Questionnaire: The instrument that was used in this study was Children's Attitudes toward the Environment Scale-Preschool Version (CATES-PV) (17 items), which was developed by Musser and Diamond (1999). One of the researchers used this instrument in an unpublished study after she translated it into Arabic and made changes to some items in the original scale to make them appropriate for Kuwaiti society and its culture. For example, the item that read "Likes to look at plants and bugs outside but never brings them home" was divided into two items: "Likes to look at plants but never brings them home," and "Likes to look at bugs outside but never brings them home." Consequently, the scale consisted of 18 items rather than 17. During the research period, additional amendments were made to the scale as the results of the study began to unfold. For example, two items were excluded from the scale, such as the item that reads "Picks up dirty trash and throws it away" and the opposite item "Does not pick up dirty trash and throw it away." All participants chose the negative item and attitude and stated that this is their domestic workers' task. Additionally, their mothers do not allow them to pick up trash. For the item "Rides with others even if it is a little crowded" and the opposite item "Does not like being crowded in a car," all participants chose the negative action or attitude because in Kuwait, it is normal for a child to sit on the nanny's or mother's lap when the car is crowded. In its final

draft, the questionnaire consisted of 16 items. These 16 items were presented to the children with a picture of two opposing actions for each item see picture 1. The child was then asked to select the behavior that he/she prefers. To make the child feel at ease, each child was interviewed by the researcher in an adjacent room right next to his/her classroom. The researchers were keen to limit the interviews to 15 minutes (required by the kindergarten officials) as they did not want the child miss school activities. No child refused to answer the questionnaire because they enjoyed looking at the questionnaire's pictures. The questionnaire was used as a pre- and post-test to examine the level of the children's environmental awareness. The 16-item attitude scale was presented in a 2-point Likert-type response format of 1 = False and 2 = True. The scale was administered twice in September as a pre-test and again at the end of December as a post-test. The questionnaire results were analyzed quantitatively.



The question the researcher asks the child: "Which picture is like your act when you brush your teeth?"

Picture (1): saving water

All interviews results were analyzed qualitatively.

Interview 1: The teachers in group 1 were interviewed to investigate their beliefs regarding the use of puppets and story-telling when teaching kindergarten children.

Interview 2: The children in group 1 were interviewed to investigate their feelings regarding the use of puppets and story-telling to teach environmental issues and positive attitudes. The interviews were semi-

structured. The researchers asked the children: "what do you think of the environmental figure puppets the teachers used", and henceforth, the children's responses and cooperation generated more questions.

Validity: To ensure the questionnaire validity, the questionnaire was reviewed by a number of expertise in curriculum, instruction, and teaching methods at the College of Education, Kuwait University, and College of Basic Education, PAAET. Their valuable feedback was taken into consideration, and the questionnaire was amended accordingly.

Reliability: The questionnaire's reliability was measured using Cronbach's Alpha. The calculated value of (.63), reflected the acceptability and suitability of the questionnaire as a tool to be utilized in the present study.

Procedures

Permission was obtained from both the Ministry of Education and the children's parents to allow the children to participate in this study. An assent form was also read to the children before administering the questionnaire and interviewing them. In September, the researchers conducted a two-day intensive training workshop for the teachers of the experimental groups (group1). This workshop focused on discussing the way puppets with story-telling are used to teach children environmental knowledge and attitudes. To control the "story-telling" variable, each teacher in (group1) was given stories concerning environmental knowledge and positive attitudes and the puppets. The teachers in (group2) were given only stories concerning environmental knowledge and attitudes. The teachers in (group3) were not given any stories or puppets. The teachers then began the study, which lasted three months.

For the analysis, the ages of the children were divided into four categories see table 2. In category age 1, the ages range from four years and six months to four years and eight months. In category age 2, the ages range from four years and nine months to four years and 11 months. In category age 3, the ages range from five years to five years and two months. Finally, in category age 4, the ages range from five years and three months to five years and five months.

Table (2)
Age categories

Category	Age
1	4 years and 6 months to 4 years and 8 months
2	4 years and 9 months to 4 years and 11 months
3	5 years to 5 years and 2 months
4	5 years and 3 months to 5 years and 6 months

The puppets were operated by the teachers to tell stories. The story scenarios were created by the researchers. These stories were presented for 10 minutes daily to group1 and group 2 after each story period and were repeated after finishing all the stories during the three-month period.

Results

In this section, quantitative analysis of the questionnaire results will be introduced followed by a qualitative analysis of the interviews' results.

The reliability of the test was measured by using Cronbach's alpha with a figure of 0.63. The significance level was set at $p < .05$.

1.

To examine question 1: Do puppets increase children's environmental awareness?

the researchers used a descriptive analysis by using the mean scores for the totals of the pre- and post-tests that were obtained for the three groups and the different scores between these means; see Table 3.

Table (3)
Pre and post-test mean score data of all groups

Group	pre	post	Difference between pre-post
1	1.26	1.92	= > 0 .6
2	1.23	1.6	= > 0.37
3	1.19	1.45	= > 0.26

Overall, the researchers observed that the children's environmental awareness improved regardless of the method that the teachers used.

However, differences were detected among the groups and between the pre- and post-tests when examining the children's understanding of environmental concepts and their attitudes towards the environment. An ANOVA analysis was performed to examine the differences among the groups in the post-test. The children in group 1 appeared to progress further in their attitudes toward the environment than the children in groups 2 and 3; see Table 4.

Table (4)
ANOVA between Groups in the Post-Test

Group	Sum of Squares	Df	Mean Square	F	sig
Between Groups	2.742	2	1.371	112.119	.000
Within Groups	.807	66	.012		

Although group 1 showed higher mean scores than groups 2 and 3. the differences were not significant among the groups in the pre-test after performing the Tukey analysis; see Table 5.

Table (5)
Tukey Analysis between Groups in the Post-Test

Group	N = 69	Subset for alpha = 0.05		
		1	2	3
Tradition no story no puppets	23	1.444		
Story no puppets	22		1.601	
Puppets and Story	24			1.929
Sig.		1.000	1.000	1.000

The above analysis indicates that the group that used puppets with environmental figures and stories had higher mean scores than the two other groups (Table 5).

To take the analysis one step further to investigate the differences between the pre- and post-tests for each item, an item analysis for each group was performed. see Table 6.

Table (6)
Pre-posttest all groups

Item		Group 1				Group 2				Group 3			
		Mean		Std. Deviation		Mean		Std. Deviation		Mean		Std. Deviation	
		ppre	ppost	ppre	ppost	ppre	ppost	ppre	ppost	ppre	ppost	ppre	ppost
1	Turn water off while brushing	1.08	1.96	0.282	.058	1.23	1.95	0.429	0.213	1.00	1.78	.000	0.422
2	Use both sides of paper	1.08	1.96	0.282	0.204	1.00	1.32	.000	0.477	1.00	1.09	.000	0.288
3	Recycling things	1.04	1.96	0.204	0.204	1.00	1.32	.000	0.477	1.00	1.00	.000	.000
4	Sort bottles and cans	1.04	1.96	0.204	0.204	1.00	1.00	.000	.000	1.00	1.04	.000	0.209
5	Look at plants and bring them home	1.75	2.00	0.442	.000	1.59	2.00	0.503	.000	1.83	1.87	0.388	0.344
6	Look at bugs and bring them home	1.13	2.00	0.338	.000	1.18	1.50	0.395	0.512	1.17	1.30	0.388	0.470
7	Feed birds	1.17	2.00	0.381	.000	1.41	1.86	0.503	0.351	1.30	1.83	0.470	0.388
8	Care for wild animals	1.04	1.92	0.204	0.282	1.00	1.64	.000	0.492	1.13	1.39	0.344	0.499
9	Touching or catching wild animals	1.04	1.54	0.204	0.509	1.00	1.00	.000	.000	1.04	1.09	0.209	0.288
10	Camp outdoors	2.00	2.00	0.000	.000	1.95	2.00	0.213	.000	1.74	1.87	0.449	0.344
11	Going to sea-side	1.71	2.00	0.464	.000	1.86	1.95	0.351	0.213	1.65	1.78	0.487	0.422
12	Share toys with others	1.08	1.71	0.282	0.464	1.00	1.14	.000	0.351	1.04	1.17	0.209	0.388
13	Like living near factories	1.38	1.96	0.495	0.204	1.09	1.86	0.294	0.351	1.17	1.35	0.388	0.487

Cont/ Table (6)
Pre-posttest all groups

Item		Group 1				Group 2				Group 3			
		Mean		Std. Deviation		Mean		Std. Deviation		Mean		Std. Deviation	
		ppre	ppost	ppre	ppost	ppre	ppost	ppre	ppost	ppre	ppost	ppre	ppost
14	Like living near parks and gardens	1.33	2.00	0.482	.000	1.32	1.95	0.477	0.213	1.09	1.74	0.288	0.449
15	Turn lights off when leaving room	1.08	2.00	0.282	.000	1.05	1.86	0.213	0.351	1.00	1.74	0.000	0.449
16	Lower the sound volume of the electronic devices	1.25	1.79	0.442	0.415	1.05	1.32	0.213	0.477	1.00	1.78	.000	0.422

Group 1 had higher scores in the post-test for all items. However, item 10 had the highest scores for both pretests with a mean score of 2.00 and a standard deviation of .000 in the post-test; items 5, 6, 7, 10, 11, 14, and 15 had higher scores in the post-test regarding the mean score (2.000) and standard deviation (.000). Item 9 had the lowest mean score (1.54).

Group 2 had high scores in the post-test for all items. However, items 5 and 10 had the highest scores in both the pre-and post-tests, where the mean score was 1.95 and the standard deviation was .000. Item 9 had the lowest mean score (1.00) and standard deviation (.000) (Table 6).

Group 3 had high scores in the post-test for all items. However, items 5 and 10 had the highest scores in the pre-test with mean scores of 1.83 and 1.74. The mean score for item 5 in the post-test was 1.87, and the standard deviation was .344; the mean score for item 10 in the post-test was 1.87, and the standard deviation was .344. Item 3 had a mean least score of 1.000 and a standard deviation of .000 (Table 6).

2. To examine question 2 “Are there any significant differences

among the groups regarding age and gender”?. In terms of the outcomes of groups 1, 2, and 3, the analysis showed that age and gender had no significant role in the test scale items for the three groups.

Analysis of the two interviews: The children and teachers in group 1 were interviewed to examine their beliefs and comments regarding the use of puppets with environmental characters. The following is the qualitative analysis of the interviews of both the children and the teachers.

One teacher from group 1 said, "I am pleased with these environmental puppets and the environmental story-telling. The children expressed positive attitudes toward the environment". A second teacher from the same group claimed that although they used puppets earlier when telling stories to their children, the way they used them in this experiment is totally different. For the sake of this study, for example, they used not only puppets with environmental characters but also environmental story-telling. She added that she and her colleagues felt so happy to see the children express and display positive behaviors during their activities throughout the whole school day. Moreover, she claimed that the children tried to imitate the puppets' actions and what was interesting, though, was to see the children during recesses try to assess any wrong actions to the environment that were performed by the children from other classrooms.

When interviewing the children of group 1 to assess their feelings towards the use puppets with environmental characters and, hence, obtain feedback, some children claimed that those were fun; others claimed that the environmental figure puppets are new to them. One child said, "I like these environmental puppets". Subsequently, the researcher asked the child "why do you like them? The child said, "First time I see these characters" Another child said, "can we keep these puppets in our classroom?" So, the researcher asked the child why do you want to keep them". The child answered, "I want to use them with my friends to tell stories about environment". A child said, "Can I use these puppets to tell the same stories to my classmates, just like our teachers did with us?" Then the researcher asked the child why? The child said, "They make the story easy to understand".

Discussion

In this section, all quantitative and qualitative results will be discussed in full. First a discussion of the questionnaire results will be stated followed by a discussion of the qualitative results.

The statistical analysis above indicates that the children's' environmental awareness have increased. The children during the three months of our experiment developed learning experiences and gained some environmental knowledge. Group1 which was exposed to puppets with environmental characters has outperformed the two other groups. Our results here correspond with the work of Servizzi (2008), Margioridou and Takantza (1992), Shepherd and Koberstein (1989), Ogelman (2012), Peck and Virkler (2006), Simon et al. (2008), Snart and Maguire (1986), Henna (1996), Sweedan (2004) and English and Machin (2005), who emphasized that using puppets to teach children is an effective method. The researchers believe that such outperformance is due to the fact that group 1 was exposed to puppets with environmental characters. This belief was seconded by the children themselves who during the interviews claimed how happy they were when playing with the characters and expressed their willingness to imitate their teachers in teaching using puppets. The teachers also confirmed what the children claimed. The interviews, however, showed that the children in group 1 were very pleased when the teachers used puppets and story-telling. According to the children, these methods helped them to better care for their environment. The results of the two types of interviews (teachers and children) strongly verified the results of the questionnaire, and the results are compatible with the findings of Ogelman (2012) and English and Machin (2005), who investigated the usefulness of puppets in classrooms to present environmental awareness activities. The results also correspond with the results of Servizzi (2008), Snart and Maguire (1986) and Sweedan (2004), who investigated the use of puppets in mainstream classrooms when teaching many types of concepts to special needs children. Moreover, the results parallel the findings of Margioridou and Takantza (1992), who investigated the use of puppets and story-telling to increase children's cognitive abilities. Additionally, the results of this study are similar to the results of Shepherd and Koberstein (1989) and Peck and Virkler (2006), who investigated the use of puppets to increase children's reading skills and use of books.

By reviewing the results in Table 5, the highest mean rates of the items in both the pre- and post-tests for the three groups were successively observed in items 5 and 10, namely, "Looks at plants outside but never brings them home" and "Likes to camp outdoors". According to Table 5, the mean score for item 5 was 2.00, and the standard deviation was .000; for item 10, the mean score was 2.00, and the standard deviation was .000. The researchers believe that the high rate for item 10 can be explained in the context of weather conditions. Geographically speaking, Kuwait has hot summer and cold winter. In their spare time, Kuwaitis usually go to the seaside in the summer and camp in the desert in the winter. To explain item 5, "Looks at plants outside but never brings them home", we must briefly discuss home gardens in Kuwait. Most Kuwaiti families have a garden in front of their homes with a playground for their children and grandchildren; additionally, the Kuwaiti government builds parks in each neighborhood and decorates the streets with trees, plants and flowers. These circumstances may indicate why children like living close to gardens and parks. These items undoubtedly had high mean differences.

In addition, the statistical results also showed that the use of appropriate tools, such as environmental puppets figures is effective in developing children's environmental awareness. These results are compatible with previous research (e.g., Davis, 2015; Davis and Eliot, 2014 Laza et al., 2009; Hulya & Oct 2011; Walsh-Daneshmandi & MacLachlan, 2006; Al Malt, 2006; Al Rafae, 2000; Kumara, 2008; Lee & Ma, 2006; Powers, 2004; Al Mogaiseeb, 2007; Evans et al., 2007; English & Machin, 2005). Concerning the two variables of age and gender, the results did not show any significance for the test scale items for the three groups. Therefore, these results are well- matched with the results of Henna (1996), Al Mogaiseeb (2007), Evans et al. (2007) and Hulya (2011).

Conclusions and Recommendations

This study examined the effect of using puppets to increase Kuwaiti kindergarten children's environmental awareness in Kuwait. This three months' study was a quasi-experimental study where a questionnaire was administered to the children and interviews were administered to both children and teachers. The sample of this study was divided into

two experimental groups and one control group. The results were analyzed both quantitatively and qualitatively. The results revealed that using puppets of environmental characters may well increase children's environmental awareness. They also revealed that using puppets and environmental stories in kindergarten schools has a positive effect on children. The researchers suggest that future research may address the same issue in different Arab countries as used in teaching different subject fields. They really hope that the findings of this research could contribute to the existing literature on developing children's environmental awareness. We feel confident that non-technological instructional media, such as puppets, can be used with kindergarten children effectively.

Based on the results of this study, the researchers came out with the following recommendations:

- 1 - Kindergarten teachers are advised to use non-digital media, such as puppets and stories, to enhance positive children's learning process.
- 2 - The environmental education program, with all its dimensions (knowledge, attitudes, and skills) should be a required course offered at teachers' preparation institutions.
- 3 - The environmental education program at kindergartens' curricula must emphasize and acquire children knowledge, attitudes, and skills.
- 4 - Educational decision makers should encourage teachers to join in-service training programs and workshops that deal with teaching positive environmental attitudes by using puppets.

تنمية الوعي البيئي لدى أطفال مرحلة الرياض باستخدام عرائس الدمى

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الملخص

هدفت الدراسة الحالية التحقق من مدى تأثير استخدام "عرائس الدمى" في تعزيز الوعي البيئي لدى أطفال مرحلة الرياض بدولة الكويت. ولتحقيق أهداف الدراسة، تبنى الباحثان المنهج شبه التجريبي، واستغرق تطبيقه ثلاثة شهور. استخدمت الدراسة الاستبيان والمقابلة كأداتين بحثيتين لجمع البيانات. تكونت عينة الدراسة من مجموعتين تجريبيتين، بجانب مجموعة ضابطة. أظهرت نتائج الدراسة تفوق المجموعة الأولى (المستخدمة لعرائس الدمى والقصص معاً) على المجموعة الثانية (المستخدمة لقصص فقط)، وأيضاً على المجموعة الثالثة (الضابطة)؛ كما لم يظهر هناك أي تأثير لمتغيري العمر والجنس على مستوى الوعي البيئي للأطفال. كذلك أشارت نتائج مقابلات المعلمات إلى أن الأطفال بدأوا في التصرف بإيجابية تجاه البيئة أثناء ممارستهم للأنشطة اليومية؛ كما كشفت نتائج المقابلات التي أجريت للأطفال العينة استمتاعهم في إعادة سرد القصص مستخدمين نفس عرائس الدمى. ومن أبرز توصيات الدراسة وجوب تقديم برنامج للتربية البيئية بأبعاده المعرفية والسلوكية والمهارية على شكل مقرر إجباري في جميع مؤسسات إعداد المعلم؛ حيث معلمات رياض الأطفال على استخدام الوسائل غير الرقمية، كعرائس الدمى والقصص، لتعزيز عملية التعلم لدى الأطفال؛ وأخيراً، التأكيد على أن تتضمن التربية البيئية في برامج رياض الأطفال إكسابهم المعرفة والسلوكيات والممارسات البيئية المناسبة.

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