

Outdoor education in natural life park: an experience from Turkey

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Abstract

The purpose of this article is to investigate Regional Boarding Primary Schools (RBPS) students' attitudes toward environment and their perceptions of animals and environment as a result of outdoor education program which was held in Izmir Natural Life Park. Seven different activities based on active learning strategies were designed to teach students about the lives of animals. Two data collection tools were used to measure students' attitudes and perceptions. The study was conducted with 120 students in 2010-2011 teaching semester. The result of the study shows that active learning based outdoor activities helped students to develop positive attitudes toward environment. It is also revealed that activities conducted in natural life park changed students' perceptions of animals and environment. The study suggests using natural life parks to teach science topics related to animals and environments.

Keywords: Outdoor education, natural life park, animals, Regional Boarding Primary Schools

Introduction

It has long been the consensus that education is not limited to what happens inside the walls of schools. Rather, according to Kolb (1984), one of the experiential learning theorists, knowledge is continuously acquired through both personal and environmental experiences. In order learning to be experiential, the experiences must be authentic, common activities must be used among students, the activity for the real experience must have been planned and there should be a leader to guide the learning (Gilbertson, 2006). In this way, experiential learning can be considered as a process through which the experience of the learner is reflected, and from this reflection new insights or learning emerge (Kolb, Rubin, & McIntyre, 1974).

The principles of experiential learning provide a strong theoretical background for most outdoor education theories and models as well (e.g., Kraft & Kielsmeier, 1995; Warren, Sakofs, & Hunt, 1995). In such a way that, well structured outdoor education can be considered as example of experiential learning in the outdoors. For example, instead of reading animals and their structures from a book, going to the zoo and learning in interaction with the zoo environment in a well-designed outdoor education program is experiential learning.

Outdoor education is defined as the use of outdoor opportunities for educational purposes (Neill, 2003). In most of the outdoor education programs usually small groups actively engage in activities in nature. By this way, outdoor education programs provide opportunities

for students to become environmentally conscious citizens (Yerkes & Haras, 1997) through direct experiences. Indeed, empirical research on outdoor education shows that there is, on average, small to moderate impacts of programs on visitors' personal and social development with "short-term positive impacts on a diverse range of generic life skills, with the strongest outcomes for longer, expedition-based programs with motivated young adults, and partial long-term retention of these gains" (Neill, 2008).

As one of the outdoor education contexts, zoos can be considered as effective conservation education environments because zoos aim to ensure that their visitors' environmentally responsible behaviors are improved by the construction and interpretation of the zoo experience that will eventually lead to the protection of the environment (Clayton, Fraser, & Saunders, 2009). For example, in a study by Clayton, Fraser and Saunders (2009) surveys of 206 zoo visitors provided empirical evidence that support for protecting both animals and species is closely related with learning, with wanting to learn more, and with a feeling of connection to the animal. Fraser (2009) draws attention to the zoo visits of parents and their children. He concluded that parents think zoos as a useful tool for children "to develop skills with altruism, to transfer environmental values, to elevate children's self-esteem, and to inculcate social norms that they believe will aid in their children's social success in the future". Schools also arrange zoo visits with social objectives such that pupils can practice their social skills in a safe place (Tunncliffe, 1994). Because of this social objective, in their visits, school groups are expected to have a more focused conversational content about living organisms, their taxonomy and attributes since school visits to zoos are undertaken for educational reasons (Tunncliffe, 1999; Tunncliffe, 1994). In a study designed to track changes in children's representations of animals over the course of a school visit to the zoo (Wagoner & Jensen, 2010), results indicate the potential of educational presentations based around zoo visits, for enabling conceptual transformations relating to environmental science.

While research in and about zoos imply some evidence of positive outcomes for adult visitors or feelings about parents on the impact of zoo onto the development of their children, there is little known when it comes to children (Wagoner & Jensen, 2010). Several studies showed that children looking at animals only mention anatomical features such as the dimensions, shape and color (Tunncliffe, 1999), eleven year-old children are unable to classify the biological exemplars (Ryman, 1974), and children's thinking about animals in science lessons simply related with shape, form and size (Braund, 1998), and school children engages in sign reading only when they are instructed before the visit (Anderson et al., 2000) or in the case of the elementary students, when they had a specific activity which requires the use of signs. Additionally, students are found to "consider ambiguous and often conflicting pieces of information when classifying animals, ultimately arriving at a decision based on relative size or perceived importance of body parts" as Trowbridge and Mintzes (1985) stated. Also Bell (1981) had shown that children consider only mammals when they refer to the animals. Tofield et al. (2003) emphasized another important implication of school visits to zoos with regard to school children in such a way that "...general zoo visitors and school teachers and school groups do not necessarily associate zoo visits with learning. Nonetheless, learning did occur during visits to this zoo. For the general zoo visitors this was limited, whereas for the school groups, there were strong learning outcomes for primary school and somewhat less effective learning for the secondary school children".

Therefore, the zoos as outdoor education contexts, efficient strategies are needed in order not only to improve children's knowledge of animals and their perception of environment, but also to turn their attitudes towards the environment to be highly positive especially for the

elementary school children since they had less learning and benefit from zoo visits. Hence, in this paper, it is investigated if there is a change in elementary level children's attitude towards environment and their perceptions of animals and environment as a result of an outdoor education program, which took place in a natural life park.

Methodology

Sample

The study consists of 120-sixth grade students from three Primary Boarding School in 2010-2011 teaching semester. The schools were selected randomly among the Primary Boarding Schools located in Izmir. Three students' data were removed the dataset because of the missing information provided by the students. For this reason, 117 students' data were analyzed to reach conclusions. The demographic information about the students can be found at Table 1.

Table 1. The demographic properties of participants

<i>Gender</i>	n	%
Female	39	33.3
Male	78	66.7
<i>Mother Education Level</i>		
Illiterate	19	16.2
Primary School	80	68.4
Secondary School	10	8.5
High School	6	5.1
University	1	0.9
Master and Ph.D.	1	0.9
<i>Father Education Level</i>		
Illiterate	2	1.7
Primary School	84	71.8
Secondary School	14	12.0
High School	11	9.4
University	3	2.6
Master and Ph.D.	1	0.9
<i>Mother Profession</i>		
Doctor	1	0.9
Worker	15	12.8
Self-employed	13	11.1
Other	88	75.2
<i>Father profession</i>		
Bank employer	1	0.9
Soldier	1	0.9
Officer	4	3.4
Worker	35	29.9
Self-employed	34	29.1
Other	42	35.9

While 66.7% of the students are male, 33.3% of the students are female. When parents' educational levels are taken into consideration, many of the mothers and fathers were graduated from primary schools. The number of parents graduated from university is very low comparing with primary schools. Table 1 provides further demographic information about the sample.

Data Collection

In order to evaluate students' knowledge about the environment and attitudes toward environment, two different measurement tools were used to demonstrate the possible changes

that occur during the outdoor activities. One of the tools used in this study is “Environmental Attitude Scale”. This scale consists of two parts. The first part includes four questions related to some characteristics (age, gender, educational status of mother and father etc) of students; and the second part comprises 20 likert-type items that determine the attitudes of students toward environment. The original version of this scale was developed by Leeming and Dwyer (1995) and adapted into Turkish by Alp, Ertepinar, Tekkaya ve Yılmaz (2006). The internal consistency coefficient (Cronbach Alpha) of the scale was found as .92, this result suggest that the scale shows good internal consistency reliability and can be used for the research purposes.

Another data collection tool of this research is “The Draw-An-Environment Test Rubric (DAET-R)” developed by Moseley, Desjean-Perrotta and Utley (2010). This test uses the draw and explain protocol, and includes a single page with two prompts. In the first part, students were asked to draw a picture about the environment. The second half of the survey contains the prompt to complete the sentence ‘My definition of the environment is...’. A rubric was used to analyze students’ drawings and explanation. The rubric has seven dimension which are human, living, abiotic, human built or designed, number of animal species, the properties of animals and the life ground of the animals. The assessment of the DAET-R was done by using four sections based on interactions of the four environmental factors with each other in the drawings: factor not present (0), factor present (1), factor interacting with other factors (2), and two or more factors interacting within a systems approach (3). If there is no factor in the drawings, a score of zero was given. If the factor was merely present in a drawing without any interactions with the other factors, a score of one was given. A score of two was given if a particular factor was existed as interacting with one or more factors, or a score of three if it was evident that the participant was trying to indicate an interaction among factors with an emphasis on a systems approach. The minimum and maximum scores were ranged from 0 to 12.

Students were completed the test in the 45 minutes. Three independent reviewers were analyzed and scored all of the 117 drawings. Each of them followed the same scoring directions and rubric. A final raw score was calculated for each drawing by reviewers. In order to determine consistencies and inconsistencies among reviewers’ scores, reviewers scored drawings as a group work. After these procedures, Pearson’s product-moment correlations among all 3 reviewers on the factors and overall rubric were calculated. It was found that correlations among reviewers’ scores are changed from .52 to .78.

Findings

Table 2 presents frequencies and percentages of four different factors entitled human, living, abiotic and built or designed. As it can be seen from Table 2, students think that human built or designed is not important factor of the environmental system. Approximately half of the students did not draw any built or designed factor in their drawings in both pre-test and post test. The factor drawn the most with interactions focused on systems approach was human (%29.1 for pre-test and %26.5 for post-test). They generally tended to drew living and abiotics factors in their drawings without interaction among factors focused on a systems approach. When the living factor is considered, it is shown that most of the students used living things in their drawings. For example, while the percentage of students who draw two or three living things in their pre-drawings was 27.3, it was surprisingly increased to 74.4%. However, the drawings of the students who do not use any living factor (13%) also significantly increased in their post drawings (24.8%). The drawings of building interacted

with living things also increased at the post drawings from 46.3% to 52.1%. Further information about pre- and post drawings can be found at Table 2 and Appendix I.

Table 2. Number of students participated and the percentage of factors in the drawings.

Score	Human		Living		Abiotic		Built or designed	
	Pre-test N (%)	Post-test N (%)	Pre-test N (%)	Post-test N (%)	Pre-test N (%)	Post-test N (%)	Pre-test N (%)	Post-test N (%)
0	56 (47.9)	65 (55.6)	13 (11.1)	1 (0.9)	43 (36.8)	18 (15.4)	66 (56.4)	56 (47.9)
1	14 (12.0)	8 (6.8)	72 (71.5)	29 (24.8)	58 (49.6)	58 (49.6)	32 (27.4)	27 (23.1)
2	13 (11.1)	13 (11.1)	26 (22.2)	73 (62.4)	12 (10.3)	33 (28.2)	17 (14.5)	23 (19.7)
3	34 (29.1)	31 (26.5)	6 (5.1)	14 (12.0)	4 (3.4)	8 (6.8)	2 (1.7)	10 (8.5)

Table 3. The number of the percentage of animal species

Number	Animal species	
	Pre- N (%)	Post-drawings N (%)
0	56 (47.9)	9 (7.7)
1	39 (33.3)	35 (29.9)
2	13 (11.1)	19 (16.2)
3	5 (4.3)	24 (20.5)
4	2 (1.7)	12 (10.3)
5	1 (0.9)	6 (5.1)
6	-	7 (6.0)
7	-	3 (2.6)
8	1 (0.9)	2 (1.7)

The findings that are presented in Table 3 show frequency and percentage distributions of the number of animal species in students’ drawings. According to the findings, almost half of the students (47.9%) did not draw an animal connected with environment. At the end of the study, 91% of the students did draw at least one animal connected with environment in their drawings.

Table 4. The usage of animal properties in drawings

Score	Physical properties	
	Pre- N (%)	Post-drawings N (%)
0	97 (82.9)	46 (39.3)
1	20 (17.1)	71 (60.7)

Table 4 presents properties of animals (colors, pattern etc.) in students’ pre- and post drawings. According to the Table 4, 82.9% of the students did not use the properties of animals. The post-drawings showed that 60.7% of the students used animals’ properties in their drawings.

Table 5. Frequency and percentage distributions of the factor regarding living area.

Score	Living area	
	Pre- N (%)	Post-drawings N (%)
0	62 (53.0)	13 (11.1)
1	6 (5.1)	21 (17.9)
2	49 (41.9)	83 (70.9)

Table 5 shows the Frequency and percentage distributions of the factor regarding living area. Almost half of the students (53%) did not make a connection between animals and their living

area in their pre-drawings. However, at the post-drawings, most of the students (88.8%) draw animals connected with their living location.

In order to evaluate students' attitudes toward environment as a result of outdoor education, a Likert type scale was implemented to the students. The findings were presented at Table 6. A dependent-samples t-test was conducted to compare the pre and post attitude scores. According to Table 6, there were significant differences in pre (M=68.97, SD=19.01) and post attitude scores [M=78.25, SD=19.01; $t(116)=-5.28$, $p=.00$]. The magnitude of the differences in the means was very large (eta squared=.19). This result shows that the activities in the natural park increased the students' positive attitudes toward environment.

Table 6. Pre and post attitude scores of the students and dependent t-test results.

Test	N	M	sd	t	df	p
Pre-test	117	68.97				
Post test	117	78.25	19.01	-5.28	116	.000*

* $p<0.05$

Discussion

The purpose of this article was to investigate elementary students' attitudes toward environment and their perception of animals and environment as a result of outdoor education program which was held in Izmir Natural Life Park. The program included seven different active learning based activities that are aimed to give a general understanding and perception of living things in Natural Life Park to the students.

The results of the research show that students' perceptions regarding environment and animals and attitudes toward environment changed positively through outdoor education program. For example, before the research, most of the students did not indicate any interaction among the animals, living things, abiotic and buildings, the students added these factors indicated their post drawings. According to the Berger (2009), zoos have a major impact on public perceptions of animals, for better or for worse. Another important result obtained from this research is regarding the variety of the animals in students' drawings. In the pre-drawings, students used only one or two species of animal in their drawings, however they used more than two animal species in their post-drawings. This situation can be interpreted that students constructed more animal species in their minds with the help of the activities during the implementation of the program. One of the important outcomes of the research was related to animals' properties. While 82.9% of the students did not take into consideration of the animals' properties, 60.7% of the students used animals' properties such as color, pattern and spot in their post drawings. In the research, the perception of students related to animals' interaction with their environments was investigated in students' drawings. In students' pre- drawings, animals were not interacted with their environments. However, in their post-drawings, they drew animals interacted with their environment.

The students' attitudes toward environment investigated in this research. The result of the analyses of attitudes dataset show that there was a significant difference between students' pre- and post attitudes toward environment. Analyses of the data showed that students' environmental attitudes significantly changed after outdoor education program. This result can be interpreted that students learned animals in their environment with fun activities and this situation provided positive attitudes toward environment. A study conducted by Wagoner and Jensen (2010) includes same results with the current study: the result of their research indicates the potential of educational presentations based around zoo visits, for enabling conceptual transformations relating to environmental science. The research concludes the vital

role of existing cultural representations of different animals and habitats which are confronted by the new ideas introduced during educational visits to the zoo.

This study put forward the importance of teaching and learning activities in natural life parks or zoos. Instead of teaching of science topics related to animals and environment in boring classroom atmosphere, natural life parks or zoos can be used not only to increase students' motivation, interest and attitudes but also can be used to change their perception about animals and environment. For this reason, further researches should be focus on more active learning based activities that will be implemented in natural life parks or zoos.

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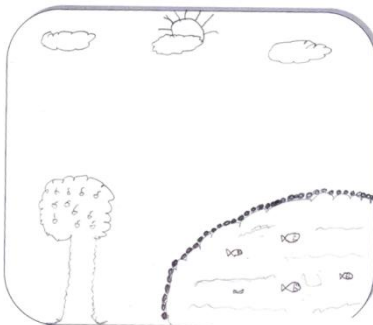
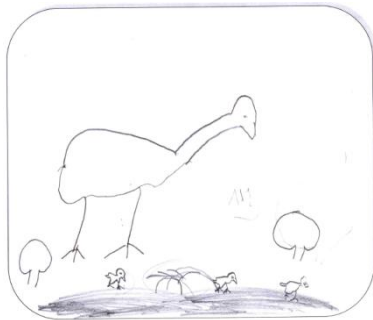
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Appendix I: Samples of the students drawings

Pre-drawings



Post-drawings

