

## PRESCHOOLERS' EXPLORATION OF HERB ENVIRONMENTS

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### **Abstract**

*The present study is about a description of an experimental research, realised in 2016-2017 school year, at the Normal Programme Kindergarten in Iclandu Mare, Mureş County, Romania. The following hypothesis was tested: If preschoolers are systematically involved in direct exploration activities of the environment with low herbs associations, then, they acquired a big volume of knowledge about this type of environment and they develop their thinking operations. In this psychopedagogical experiment, it was applied an initial test, many learning activities were organized in a rural area, where the preschoolers studied the herb environments (pastures, grassland, meadows) and, in the end, it was applied another test. The preschoolers' registered results from the experimental group showed that the structured learning activities by Exploration-Explanation-Extension model were effective and the preschoolers have acquired a lot of knowledge compared to the initial stage. In this research, the hypothesis was confirmed.*

**Keywords:** *hike, activity in nature, observation, sensory games, field activity*

### **INTRODUCTION**

The grass represents a generic name assigned to annual or perennial herbaceous plants, with green and thin airlines, which are used as animal feed (DEX, 2009). The preschoolers carry out many activities on herb surfaces, without noticing them, being rather concerned about the presence of some insects, birds or other children with whom they interact.

Around the world, the low herb associations were strongly negatively affected by human actions, many surfaces being fallows and covered with crop plants and some of the plant and animal species are on the verge of extinction. In urban and rural areas, there is a tendency of herb surfaces reduction, in favour of the areas occupied with buildings, transport infrastructure and other anthropic facilities.

The knowledge about the environments with herb associations is necessary for every person living in the rural area to understand them correctly, to identify the real issues, and to find viable solutions to solve them and to have adequate behaviour towards this type of environment. In addition, they have to know it very well for optimal space adaptation. We consider that the environments covered by grass represent the best educational field because the preschoolers often play in this kind of environments and so they could acquire some knowledge about the environment components and the relationships between them in order to form positive attitudes and appropriate behaviour towards these environments.

In *Curriculum for Preschool Education* (2012) in Romania, children are required to learn more about the environment where some activities in nature are organized, into an appropriate context for both play and observation, in which it is ensured the premises of correct representations about the environment children live in.

Starting from these observations, we organized a scientific research in order to analyse the efficiency of didactic activities through some hikes in which we studied low herbs environments located in the residence area, Iclandu Mare, Mureş County. The following hypothesis was tested in this experimental activity: *If preschoolers are systematically involved in direct exploration activities of the environment with low herbs associations, in discovering it, as a result, they acquire a large amount of knowledge about this type of environment and they develop their thinking operations.*

## **THEORETICAL BACKGROUND**

For a long time now, one of the main objectives in Romania has been both learning and exploration of environment (Dulamă & Ilovan, 2015, 2017). In didactic works, both close by and local environment learning is very important, there are presented some educational environment principals and the phases which need to be covered in order to do it (Dulamă, 2010, 2011, 2012), and also some environment protection measures which could be applied by children (Dulamă et al., 2010).

In many studies, it is mentioned and presented the importance of extracurricular activities, especially the hikes, where children can directly

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observe and analyse environmental components and the relations among them (Dulamă, 2004; Dulamă & Buda, 2014; Ilovan et al., 2018). This kind of activities can take place in national parks (Ilovan & Dulamă, 2006; Havadi-Nagy & Ilovan, 2013), in forests near inhabited areas (Dulamă et al., 2016; Dulamă et al., 2017) or in other regions which have significant natural heritage (Ilovan, 2007).

In the literature, it is suggested the use of the observation method for the learning activities that take place in nature (Dulamă, 2008; Jucan & Chiş, 2013), for both sensory games and exercises (Dulamă & Fărcăşiu, 2010). These ways of learning are recommended in *Curriculum for Preschool Education* (2012), in order for preschoolers to learn more about the environment in which they live. In didactic methodology works, it is showed that, in the exploration of the environment and to increase education efficiency, there is a need of guiding the preschoolers through questions asked by the teachers (Dulamă, 2008).

### **METHODS AND MATERIAL**

The psychological and pedagogical research was realised in the Normal Programme Kindergarten in Iclandu Mare, Mureş County, in the 2016-2017 school year.

*Research design.* The experimental research has three stages: (1) The initial testing of the preschoolers' knowledge; (2) the unfolding of learning activities; (3) the final evaluation of the preschoolers' knowledge. In these learning activities, the preschoolers explored two types of low herbs associations: grassland and pasture.

*Research methods.* Through hikes, we collected the research data by using both the participant observation method and collective and individual conversation method and in the classroom, by giving children two tests. We processed the data through statistic methods; we interpreted them through the content analysis method and by studying documents. We presented the results in tables and charts in Excel.

*Participants.* The experimental group was composed of 12 preschoolers from the combined team: 'The Bees Team' from the Normal Programme Kindergarten in Iclandu Mare, Mureş County. The kids from this group fulfil the criteria established at the beginning of the experiment (age, kindergarten frequency); they have an average and heterogeneous level of training, and both physical and mental level of development is in accordance with their age. The preschoolers joined many extracurricular activities – hikes, together with the preschooler teacher – Brudan Viorica-Adela, in order to explore the herb environments in the rural area of Iclandu Mare.

*The research material* was provided by the preschoolers' results to the initial and the final tests and by the children's answers to the questions the teachers asked during the hikes.

## DISCUSSIONS AND RESULTS

*The learning activities structure.* For the exploration of low herbs associations, each activity was structured based on a model including three stages: the exploration, the explanation and the expansion (Martin et al., 1998, *apud* Dulamă, 2008). Within the first stage, we stirred the children curiosity; we encouraged them to observe, to analyse, and to compare. Within the second stage, by way of conversation, we helped them determine the main features of plants and animals, as well as those of each environment.

Children managed to identify the causes that determined the changes from every type on environment (i.e. air temperature changes) and the conditions in which the plants and animals are optimally developing or having problems (e.g. draught, cold). Within the third stage, the children established certain connections with their previous knowledge about the world around them; they compared what they learned in nature with what they had already known before from different sources, they reviewed some answers to questions, the asked new questions.

*The learning objectives.* One of the objectives sought within the learning activities consisted of conceptualizing the grassland, meadow and pasture. Within these activities, the children observed the differences between the grassland – where the herbs are cut by people, are dried, raked, transported and deposited for wintertime – and *pasture* – the place in which the animals graze. The children discovered the general characteristics of herb environments, that the meadow, the grassland and the pasture comprise the low herb associations and that the plants vary in form, flower and type of seeds.

Provided that the activities in nature have been carried out over many seasons, children have managed to observe during fall, a meadow affected by haze, during winter a pasture covered in snow and during spring and summer meadows with plants in different stages of development. Most of the activities were deployed at the end of spring, when plants have many flowers. The children studied many plants: Tatin's grass, yarrow, common agrimony, dandelion, dead nettle, poppy, and daisy. On a meadow, they observed insects (bees, ants, and ladybugs), birds, and mammals.

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**Fig. 1.** Observing the plants on a grass-covered meadow



**Fig. 2.** Observing plants on a snow covered pasture



**Fig. 3.** Observing the flowers and leaves of dandelions (*Taraxacum officinale*)



**Fig. 4.** Seed observation of dandelions (*Taraxacum officinale*)



**Fig. 5.** Observing the leaf and strain of Tatin's grass (tătăneasă) (*Symphytum officinale*)



**Fig. 6.** Observation of field poppy (*Papaver rhoeas*) and of daisies (*Leucanthemum vulgare*)

*Results of the initial test vs. the final test.* We administered an initial test to the small group (2.5-3 years old children) and to the middle group (4-5 years old children). For the small group, the test consisted of three items. We tested the preschoolers in order to see if they recognize certain plants and animals specific to the environment with low herbs and see if they are

able to recognize the environment with low herbs. The children circled with different colours: the dandelion, the butterfly, the bee, the meadow and the pasture. The initial test consisted for the middle group consisted of three items, but we asked them to identify more plants, animals and more herb environments. We administered the test to these two groups, the small including children of 2.5 to 3 years and the children of 4 to 5 years formed the middle group, in October 2016, and then we graded them according to the norm. The scores achieved during test were turned into qualifiers: qualifier: *Very good* (9-10 points), *Good* (7-8 points); *Sufficient* (5-6 points) and *Insufficient* (below 5 points). Preschoolers obtained the points represented in Table 1. These results show that there is more need to involve the children in activities of environment exploration for better knowledge.

**Table 1.** Results of the initial test

Group	Age (years)	No. of children	<i>Very good</i>		<i>Good</i>		<i>Sufficient</i>		<i>Insufficient</i>	
			No.	%	No.	%	No.	%	No.	%
The small group	2.5-3	5	-	-	1	20	3	60	1	20
The middle group	4-5	7			3	42.85	3	42.85	1	14.28

Final tests included similar items to the initial one and the contents were correlated to those of the learning activities with which the children were engaged. In Table 2, we present the results achieved during the final test.

**Table 2.** Results of the final test

Group	Age (years)	No. of children	<i>Very good</i>		<i>Good</i>		<i>Sufficient</i>		<i>Insufficient</i>	
			No.	%	No.	%	No.	%	No.	%
The small group	2.5-3	5	2	40	2	40	1	20	-	-
The middle group	4-5	7	4	57.12	2	28.56	1	14.28	-	-

In Table 3, we show the results obtained by preschoolers at the initial and the final test. There can be observed that within both groups, only one child managed to acquire a smaller score and this is produced by a smaller frequency at the experimental activities conducted on field. Most of the children obtained the qualifier *very good* (two preschoolers of the small group - 40%; four preschoolers of the middle group - 57%) and qualifier *good* (two preschoolers of the small group - 40% and two preschoolers of the middle group - 29%). The results achieved at the final test applied to the small group and the middle group pointed out an increase of the preschoolers' amount of knowledge of the herb environments, compared to the initial test.

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**Table 3.** Results of the initial test vs. the final test

Group	No. of children	Test	Very good		Good		Sufficient		Insufficient	
			No.	%	No.	%	No.	%	No.	%
The small group	5	Initial test	-	-	1	20	3	60	1	20
		Final test	2	40	2	40	1	20	-	-
The small group	7	Initial test			3	43	3	43	1	15
		Final test	4	57	2	29	1	14	-	-

### CONCLUSIONS

The results obtained by preschoolers during the activities developed in herb environments of their home area, as well as those of the initial and final tests, confirmed the hypothesis of this research. Preschoolers were curious to discover plants and animals, to examine them directly in their habitat and to compare them. The hikes represented an optimal context in which the children gathered information by way of observation and play, they exercised the essential cognitive processes and they formed some attitudes and behaviours in relation to the herb environment they investigated/studied.

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