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ELEMENTARY MATHEMATICS EDUCATION OF PRESCHOOL CHILDREN IN THE UKRAINIAN HIGHLANDS

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Abstract. The paper highlights the challenges of establishment and characteristics of educational institutions functioning in the highlands. It is analyzed the work of preparatory groups that are meant to replace kindergartens in the remote mountainous areas in terms of preparing children for school. In the context of logical and mathematical development of senior preschool children we analyze the Program "Sure Start" and the issue of elementary mathematics education. It is concluded that the acquisition of this knowledge in preschool institutions and preparatory groups affects the quality of further mathematics education. In this regard effective solution to the implementation of the tasks of the Program "Sure Start" in mountainous regions is seen in cooperation on the part of kindergartens, schools and parents.

Keywords: program "Sure Start", mathematical readiness for school, mountainous areas.

With the development of Ukrainian society a special place is given to the development of the younger generation. One of the urgent tasks of the entire European education space is to improve the quality of education, particularly primary. In this context, the problem of development and improvement of school education that focuses on personal development of the child and its adaptation to school is important. Of particular note is the preparation of children for school in the highlands.

The problem of the formation and characteristics of educational institutions functioning in the highlands has been studied by K. Malycka, O. Savchenko, S. Skvortsova, V. Sukhomlynsky, V. Khrushch, I. Cervinska. Psychologists A. Antonov, G. Antonov, I. Antonov, O. Bohovarov, E. Buhrymenko, L. Wenger, M. Ginsburg, J. Hilbuh, N. Hutkina, L. Kondratenko, C. Korobko, K. Polivanov, O. Proskuraet al. devoted their works to the problem of determining children readiness for school.

Formation of the conceptual foundations of preparing children for school is represented in the writings of educators and psychologists S. Amonashvili, L. Artemov, I. Beh, O. Bogush, T. Bondarenko, L. Vygotsky, E. Vilchkovsky, V. Davydov, O. Dusavitsky, D. Elkonin, O. Usova, H. Zuckerman et al.

The purpose of the article is to show the features of preparing children for school in rural mountain areas and focus on logical-mathematical education of future first-graders.

Analysis of the survey conducted by the O. Yaremenko Ukrainian Institute for Social Research during 2006–2007 on request of the Children's Fund of United Nations in Ukraine (UNICEF) in the framework of the project "Provision of early childhood development through training parents in the mountain villages of Ivano-Frankivsk region" showed that the decrease in birth rate by 35.2% during

the years 1991–2003 caused the closure of a number of pre-schools. This led to some other problems related to integrated and high-quality preparation of children for elementary school.

Currently about 51% of children in mountainous areas are covered by preschool education. Thus, the problem of contemporary social and cultural life of children living in such territories and the problem of their education are increasingly becoming the subject of discussion at various levels.

Results of psychological and educational research clearly show that successful primary school is dependent on the proper development of a child in the preschool age and the child's readiness for school². According to child psychologist L. Wenger to be ready for school is not to be able to read, write and count; to be ready for school means to be prepared to learn all this⁵.

To complete the preparation for school, the Department of Secondary and Primary Education of the Ministry of Education and Science of Ukraine has developed a program for 5 year-old children "Sure Start". Its implementation is entrusted to preschool educational institutions. However, there are no kindergartens in some mountain villages and many of the latter are located at a considerable distance from settlements where they are. Thus, the program is assigned to the school and parents.

In most schools there function preparatory groups (from September, three times a week), but even this does not solve the problem as a number of parents are unable to take children to such classes because of the "inconvenient time" and their employment. However, the survey shows that such parents feel the need to prepare their children for school in the following aspects: mastering basic knowledge in mathematics, reading, writing and acquiring a new social role of the learner³.

Psychological and pedagogical research has shown that for children who did not attend kindergarten it is sometimes difficult to find understanding in school. In these children the ability to communicate is not yet formed. There may be misunderstandings with classmates. According to psychologists it is one of the negative factors that can hinder a child successfully adapt to school, socialize with peers and act as a student².

As far as logical-mathematical training is concerned, it should be noted that learning math in 1st grade is based on the results of children's pre-school preparation, as defined by the state regulations: The Base Component of Early Childhood Education and The Program for Preschool Children Development "Sure Start". The Program among logical and mathematical parameters of preschool children development specifies the following aspects:

- be able to distinguish the location of objects in space (top, bottom, left, right, front, rear, centre) and determine the direction of motion (forward, backward, left, right);
- learn to identify the location of objects relative to ourselves and any object, the spatial location of the plane (on the desktop, in a notebook);
- be able to determine the distance, differentiate concepts: far, near, nearby, far away;
- create and expand knowledge of the units of time: minute, hour, day (part of the day – morning, afternoon, evening, night), week (week day names and their sequence), month (12 month names and their sequence), year (seasons – spring, summer, autumn, winter);
- learn to differentiate and correctly use the concept of time: now, later, earlier, later today, tomorrow, yesterday, fast, slow etc.;
- be able to compare objects by height, weight, width, length, thickness, total value, to classify objects according to the specified parameters;
- learn the basic units of measuring length (cm, m), weight (kg), volume (l), to form the skills to measure quantities which occur in a child's life by using conventional measurements;
- clarify and extend understanding of geometric shapes and their properties (plane: round, oval, triangle, square, rectangle, polygon, volume: ball, cube, cylinder, cone);
- be able to call a number from 1 to 10, from any number up to 10, from 10 to any number, to distinguish between direct and reverse, quantitative and ordinal counting;
- get acquainted with numbers (1–9 (0)) and their written forms;
- be able to establish a correspondence between the number and the corresponding number of sets;
- familiarize with the natural properties of numbers;

- familiarize with the composition of numbers of units and two smaller (within 10);
- be able to compare the two sets of number and determine the ratio of “How much more?”, “How much less?”, “Tie”, “Same” to set equality with inequality;
- be able to use the plus sign (+), minus (-), equals (=);
- be able to perform the steps of addition and subtraction, to solve simple arithmetic and logical tasks;
- learn to use the initial logical techniques associated with the formation of elementary mathematical concepts;
- be able to build the simplest expressions through linking words “and”, “or”, “if, then”, “no”;
- generate interest in logical and mathematical operations, to use knowledge in daily life⁴.

As you can see from the above, knowledge, which a child is to get in the preschool institution, is an essential foundation for success in school. The child cannot get this knowledge on their own without help from kindergarten, preparatory group, or parents.

In some mountain villages with in schools are preschool groups that work under pre-school programs: game activity, expressive activity (modelling clay, application of colored paper, drawing with chalk), development of language and logical-mathematical abilities. In such circumstances, children socialize, learn team work, learn to relate their own desires with the desires of others, to take into account the interests and needs of peers, and acquire basic skills of cooperation³.

In order to organize efficient preparation of preschool children to learn and develop intellectual abilities, pedagogues have worked out the following tips for parents:

- take into account individual psychological characteristics of the child;
- develop their speech and enrich vocabulary;
- develop the intellect of the child;
- prevent the emergence of fear in child-related training activities¹.

Equally important in this regard is the direct training of parents themselves, and the O. Yaremenko Ukrainian Institute of Social Studies offers to make the provision of pre-school education in the following ways:

- opening of traditional (public, private, community) and alternative pre-school institutions (child development centers, kindergartens of family type etc.) because of the needs, opportunities and specificity of local communities;
- organization of both consultation and training to parents within existing institutions of primary and secondary education;
- organization of training programs for parents and children initiated by public, religious organizations and local communities (in a form that meets the needs of the community, uses its potential and involves professionals on a voluntary basis)³.

Work with parents is carried out towards familiarization with their duties and the preparation of children for school. In these activities different forms are used: parent group meetings, individual consultations, open days (parents with children attending open classes and lessons in primary school), organization of events (The First/Last Bell), thematic holidays (Mother’s Day) and amateur concerts. But it does not compensate for the lack of pre-school education and systemic training of parents³.

As you can see, some geographical and social aspects imprint on the establishment of pre-school and primary education in the highlands. In order to solve these problems they should organize a harmonious work of kindergartens, preparatory groups and child development enters to provide guidance and practical assistance to prospective students and their parents.

In perspective it is expected to study the problem of forming child's mathematical readiness for school in mountainous areas.

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