

*Materials of a Conference***NON-STANDARD MATHEMATICAL TASKS AS A FACILITY OF DEVELOPMENT OF THE GIFTED CHILDREN'S CREATIVE THINKING**

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The leading domestic experts in the area of the psychology of giftedness (D.B. Bogoyavlenskaya, V.D. Shadrikov, Y.D. Babayeva, N.S. Leytes and others) regard the concept "a gifted child" as "...a child which is notable for bright, obvious, sometimes remarkable achievements (or he possesses internal pre-conditions for such achievements) in one or another kind of activity".

There are two extreme points of view in the literature dealing with the problem of the gifted children: "the gifted children are extremely exceptional (giftedness is a unique phenomenon)" and "all children are gifted".

Regarding the children's giftedness we share the point of view which claims that the majority of children have potential inclinations of giftedness.

Modern psychological literature distinguishes different kinds of giftedness: the leader giftedness, the social giftedness, the academic giftedness and others.

Among kinds of giftedness the decisive importance belongs to the academic giftedness (A.I. Savenkov), which manifests itself in learners' good (easy) ability for education.

The academic giftedness also includes the mathematical giftedness. The concept "academic giftedness" is connected with the abilities which (according to V.D. Shadrikov) are determined "through the correlation with the success of activity". The abilities are developed, therefore the giftedness and talents can also be developed.

Among the components of the mathematical giftedness are [3]: the high degree of the perception of mathematical information; its processing which is characterized by the ability for logical thinking, summarizing and reasoning with reductive structures; the storage of mathematical information and the skill to give it out; the mathematical turn of mind.

Children giftedness diagnostics can be realized according to the observations results of their activity character: the high level of operations performance; the fast mastering of activity; the invention of new methods; the bringing up unexpected ideas; the forming of the individual activity style; the high structuredness of knowledge and speed of learning; the strongly marked interest manifesting itself in perseverance, diligence and persistence; the heightened sensibility and cognitive needs; the criticalness towards personal work results; the preference of paradoxical, contradictory and uncertain information; the bright display of creative thinking signs etc.

Among summarized skills of students' creative activity are [8, 9, 10]: the skill of presenting a plan of coming operations, the skill of entering into active mental work, the skill of obtaining extra attainments without assistance, the skill of using additional literature, the skill of applying knowledge in standard and various situations in constructively original way.

The creative work in psychology is studied mainly in two aspects: as psychological process of novelty creation and as the totality of personal characteristics which ensure personal involving into this process.

Creative thinking has following characteristic features [4]:

- openness for experience (the skill to find out and pose a problem);
- breadth of characterization;
- fluency of thinking (wealth and variety of ideas, associations, originating from slight stimulus);
- flexibility of thinking (the ability to pass quickly from one category on to the other);
- originality of thinking.

Observing the connection of creative thinking with mathematical one, A.N. Kolmogorov [5], V.A. Krutetsky [6], A.I. Markushevich note the characteristic features of the latter: breadth and flexibility, the inclination to the operations with numbers and signs; the ability to solve mathematical problems; the ability to produce abstraction and others.

There are different approaches to the solution of the problem of the gifted children's creative thinking formation: the creation of problem situations, the bringing up and substantiation of hypotheses, the concretizing of the problem condition, the dividing of a difficult task into parts, the generalization of a theorem, the working out of an inverse theorem and the checking its truth, the classification of mathematical objects and the ratio between them, the problem solving with different methods and others.

The category of contradiction is considered to be a driving force in dialectics. A teacher should artificially create obstacles in the process of education. The creative component of educational and research activity should be present at every lesson for the developing of students' giftedness and creative thinking.

Non-standard mathematical tasks are used as a facility of the students' creative thinking development; they are the tasks containing "the original, creative beginning which cannot be revealed by the reproductive methods of solution and they demand searches of their own ways of solution from the students" [3, p. 8].

The pupils of 5-6 grades can be offered such non-standard tasks: for the methods of mental arithmetic, for the test of numbers divisibility, for the development of spatial imagination, for the broadening of geometrical horizon; logical tasks; the tasks of logi-

cal and combinative nature; the tasks for scission, shifting and construction of figures; the tasks for calculation of figures areas by dividing into parts and addition and others.

The role of non-standard tasks in the thinking development [1, 2] of the gifted children is diverse and it consists mainly in the following functions:

- develop students' ability to analyze, argue, prove;
- develop students' ability to transfer educational information into non-standard situations;
- develop students' logical thinking;
- develop students' cognitive abilities by way of learning of problem solving methods;
- form universal personal qualities such as the habit of systematic intellectual labor, the aspiration for knowledge, the need for control and self-control etc.;
- inculcate and strengthen an interest for Mathematics in students and others.

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