

Some Principles Of Creative Training And Education Of Modern Youth

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Abstract

It is well known that the role of the teacher is very important in fostering creative abilities in young people. Here we encounter great difficulties, since in practice it turns out that secondary schools are not always provided with a sufficient number of talented teachers who are able to individually approach students and educate young people to think independently.

Keywords: creative thinking, scientific creative thinking, deductive thinking, dialectical thinking.

The upbringing of creative abilities in a person's personality is based on the development of independent thinking. In my opinion, it can develop in the following main directions: the ability to generalize scientifically - theoretically - induction; the ability to apply theoretical conclusions when applying the flow of processes in practice - deduction; and, finally, the identification of contradictions between theoretical generalizations and processes occurring in nature - dialectics.

It is clear that mathematics and physics are the most suitable areas for educating young people in general scientific creative thinking in natural science, since here, mainly by solving problems and examples, it is possible to educate independent thinking from an early age. If we compare the effectiveness of the development of creative thinking among young people who have devoted themselves to mathematics and physics, then, apparently, it will turn out that the field of physics is much closer to life and to the possibilities of scientific study of processes in the nature around us, especially since already in laboratory classes the teacher sees how to derive theoretical generalizations from observations (the inductive method of studying nature).

Problem solving teaches the teacher to deductive thinking. To educate dialectical thinking, the teacher in a number of examples can show how the contradiction between theoretical concepts and experiment leads to new scientific discoveries in physics.

Physics is a very suitable subject for the initial education in adolescence of creative thinking in the field of natural science. This makes the organization of physics teaching a responsible task. It is generally accepted that workshops, laboratories are of great benefit for the development of creative thinking in physics, and it should be especially noted that the solution of problems in the organization of olympiads, which make it possible to most effectively reveal the creative abilities of young people, should be noted.

Our experience shows that the problems that are usually given in collections of Olympic problems do not always have the character that fosters independence of thought. Usually these tasks boil down to the fact that it is necessary to substitute the given data into the required formulas, and then get a definite answer. The independence of students is manifested only in choosing the right formulas in which to substitute data.

It seems to me that the tasks should be set less definitely, allowing students to independently select suitable values from experience. Examples of such simple tasks. Propose to determine the power of the pump motor required to maintain the jet in order to extinguish the fire of a six-story building. Or another problem: what size should the lens be so that the sun rays collected in its focus would heat the iron wire. Obviously, the student himself from life experience or from a reference book must select the data he needs. I offered problems of this kind, but, of course,

somewhat more complex ones, to university students. Over the course of several years, they prepared them and published them as a collection of problems. University students are interested in such problems, but they cannot find an exact solution, and this causes a lively discussion. A similar problem book can be compiled for secondary schools.

In the field of the arts, this may be justified, since the creative artistic ability for music, visual arts, etc. is usually determined earlier than the inclination to creative thinking in a particular field of science.

But schools created for a select, gifted youth in the field of mathematics, physics, chemistry, biology, are even insufficient. Their lack is as follows. If a talented student is removed from the school, then this kind of drains her and strongly affects the level of the entire school. This is due to the fact that a capable friend can devote much more time to his classmates than a teacher, and mutual assistance between them is easier and closer. Talented students often play a larger role than teachers in teaching their peers. But this is not enough. It is well known that in the learning process the teacher himself learns. To explain a theorem to a comrade, one must understand it well oneself, and in the process of explaining one's own incompleteness of understanding is best revealed. Thus, for their mental growth, talented schoolchildren need comrades with whom they could study. In schools for talented young people, such mutual learning usually does not occur, and this affects the effective development of abilities. Of course, there are a number of other well-known factors that are a negative side of this kind of chosen upbringing, for example, the development of self-conceit and arrogance among students, which negatively affects the normal growth of young people.

Most teachers set themselves the task of imparting a certain amount of knowledge to students and assess student performance based on how firmly they have mastered it. In addition, the criterion for assessment is little developed in determining the independence of students.

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