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C Systems of Technological Training of Secondary Education

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Annation: This article discusses the condition of continuous growth, development ¬, increase in creative potential and real creative abilities schoolchildren, both individual specialists and ¬ teams.

Keywords: progress, process, creative, technology, implementation, factor, effective, euristic, erudition, synthesis, psychological inertia.

Introduction. The development of real creative capabilities of schoolchildren involves learning to independently transfer acquired knowledge to a new situation, the ability to see a problem in familiar conditions, highlight new possibilities of a familiar phenomenon, and combine a new solution from known ones. For such training, it is necessary for schoolchildren to systematically solve accessible problems, increasing the proportion of heuristic conversation and problem presentation in teaching. It is extremely important to develop in schoolchildren originality and courage of thinking, and the ability to resist psychological inertia.

In the conditions of the scientific and technical process and as a result of the intensification of production, the widespread use of highly productive technologies, a process of conscious and creative participation of workers in the development of technological, economic, social and scientific and technical conditions of the labor process occurs. New conditions are gradually emerging for the mass development and application of workers' creativity. At the same time, technical creativity in the form of labor achievements of highly gifted scientific and technical specialists and a massive increase in the quality of work of all workers is one of the growth factors and driving forces of society. [1].

In the implementation of the program for the renewal of our society, the leading role belongs to the "human factor". Moreover, its implementation is possible subject to continuous growth, development, and increase in creative potential and real creative abilities of both individual specialists and teams. The task of the school in the current conditions is to contribute in every possible way to the activation of the "human factor" and, consequently, to achieve a significant increase in efficiency in the formation and development of students' creative abilities. In solving this problem, the school inevitably switches to new technologies of teaching and education, ensuring the normative nature of students' creative activity. [1, 2].

The active participation of schoolchildren in technical creativity contributes to the comprehensive development of the individual, since it requires from the student broad erudition, flexibility and freedom of 'thinking', that is, one of the most important requirements of the pedagogically organized process of technical creativity is its developmental function. Technical creativity is an integral indicator of the technological training of schoolchildren, on the one hand. On the other hand, it contributes to general technological education within individual academic subjects. Participating schoolchildren in technical creativity helps to deepen their knowledge of . about general educational subjects , develops interest in certain types of activities. Technical creativity always connects two spheres of activity with each other: social needs and existing natural

conditions that determine technical solutions. A technical solution is not just a synthesis of laws, it also contains a creative idea. The project of solving an idea and its optimization characterize the specifics of technical creativity, creativity in the labor process. This creativity is no less significant in development of personality, the self is no less an expression of personality than in the case of artistic or scientific creativity. Creative activity consists of structural elements and has prerequisites that contribute to the achievement of the final result. The building blocks include the analysis of a technical problem, the identification of a draft solution idea, the optimization of this idea in accordance with the existing conditions, and, finally, the productive implementation of this idea. [1,2].

The purpose and objectives of scientific research.

During the school learning process, various opportunities are used to ensure the integration of these elements.

So, during the Socially Beneficial Productive . the work of schoolchildren during technological training in all classes, the task is to attract students to mental activity, create opportunities for independent. And original draft solutions. It is important creating opportunities and conditions for creativity, reflection, research, search and invention. At the same time, what is essential is the non-formal connection of productive work with the knowledge acquired in lessons, increasing the level of technical knowledge and skills.

In this regard, there is a need to increase the technical level of preparation for work. Ensuring an increase in the technical level is connected, in truth, with an increase in the volume of technological knowledge, a combination of traditional sections of technological training about its latest content, corresponding to a certain extent to the modern technical level of labor productivity.

One of the ways to intensify the creative activity of students is to complete test assignments on topics of technological education and defend them by students. Tasks usually have socially useful significance, are technological in nature, their implementation requires the use of conscious and creative application of technological knowledge, contributes to the connection of learning with productive work based on creative activity. Test project work awakens students' need for knowledge, develops the ability to acquire it independently and creatively apply it.

Creating problematic situations on technology education lesson , solving certain problems activates students, develops their independence and technical thinking. [2;.3;].

The main directions of problem-based learning in technological training of students are the problematic presentation of educational material by the teacher and problem solving during the discussion of various options for the technological process. In addition, the master himself can offer students a number of problems to solve.

For example, when developing a technological process for preparing a handle or a hook, a teacher can offer three different options for the technological sequence of processing.

During the discussion of all three options, students express different opinions and identify both the positive and negative sides of each of them.

The creation of problematic situations in labor training lessons promotes a creative approach to a difficult task, creates conditions for improving the acquisition of knowledge and the formation of professional skills, and promotes the development of independence.

The use of the search method in technology training lessons largely depends on the conditions teaching aids, level of technological knowledge.

When starting to perform a work task, students use ready-made information and often cannot fully understand all the advantages of a particular tool and device;

The technology teacher, introducing effective tools and devices into the educational process, talking about their structure and principle of operation, offers students a search task - to determine the effectiveness of the tools, to establish how much they facilitate work and improve the quality of work performed ; works

Results of scientific research.

The master discusses the results with the student at the current and final instructions. At the final briefing, students talk about the results of their search and draw a general conclusion: the device allows you to increase the cutting speed, the auxiliary time is reduced by two to three times, and the time for thread cutting is reduced by half. Options for approximate structures of a labor training lesson, where the search method can be used, are given in the appendix. This approach expands the technological knowledge of schoolchildren: it contributes to the development of their creative activity.

It will be noted that technological training is carried out not only when the use of devices in practice is considered, but also when schoolchildren are involved in their improvement and design. One of the important methods in implementing the creative direction of technological training is to develop in schoolchildren the ability to work with technological maps, which omit the technical characteristics of the manufactured object [L.3;,4;].

When students work from documentation with incomplete data, a drawing of the part is given, tools are indicated, and students determine the sequence of operations. A drawing or drawing, instructions on the dimensions of workpieces, and information on tools may also be excluded from the technological map . As a rule, they exclude data that students can independently find using acquired knowledge. Such a task can be the independent drawing up of a drawing (sketch) and manufacturing technology, analysis, of the finished product. For example, schoolchildren are given a finished product - a hook, a spatula, a box - and are given the task: make a drawing, create a manufacturing technology.

Students' work on documentation with incomplete data develops their ability to fill in the missing link in a design, find opportunities to translate ideas into materials , and develop the ability to take into account numerous factors that influence the constructive solution of a problem.

Taking into account the prospects for improving labor training programs, the importance of including elements of mechanical engineering, hydraulics and pneumatics in their content is obvious.

Familiarizing students with the elements of mechanical engineering, hydraulics and pneumatics is one of the directions for expanding the technological horizons of students and increasing their technical literacy. When performing laboratory and practical work in mechanical engineering, hydraulics, and pneumatics, schoolchildren work with written instructions, technical documentation, and are engaged in assembling and disassembling full-scale units and parts. Laboratory and practical work is more successful if educational games are used when assembling and disassembling units.

The purpose of laboratory and practical work in mechanical engineering is to, based on the given operating conditions of parts and assembly units, gain skills in their calculation and design ; study methods, rules and design standards that ensure the production of reliable , economical structures. When carrying out laboratory and practical work, technological knowledge acquired by students in the process of studying general education subjects is used." In the process of carrying out laboratory

and practical work, significant attention is paid to the use of a set of models of mechanisms - and gears, the use of full-scale parts and mechanisms, the inclusion of targeted tasks in instruction cards students to become familiar with the production characteristics of the machines and mechanisms being studied, the methods of handling them in production, providing students with comparative information about the machines and mechanisms that take place both in enterprises and in school workshops. In laboratory and practical work, design tasks are used, which students complete independently in class and complete in extracurricular activities [L.3; 4;5;].

The content of laboratory work includes tasks for self-control. Poll . students after carrying out laboratory and practical work makes it possible to identify the level of their technological training, and the inclusion of completed design tasks for assembling mechanisms determines the degree of their technical training.

In the process of technological training, which has a creative orientation, various personality qualities are cultivated. We propose to focus on the formation of creative activity. Creative activity. Characterized by the student's desire *to* use new techniques for solving a given problem", the search for ways to overcome difficulties, the need to introduce elements of novelty into the design of products, methods of performing a task, and the ability to apply knowledge and skills in a new situation. To assess the results of developing creative activity in students, three levels of assessment have been adopted. Based on these levels, students are compared before the start, the progression process and at the final stage.

One of the aspects of the creative orientation of technological training is rationalization and inventive activity. Rationalization activities are divided into three stages: choosing a task, identifying a technical contradiction, eliminating a technical contradiction. At the same time, the need to include students in rationalization activities jointly with mentors is taken into account , which contributes not only to the creation of new designs, improvement of technology and work organization, but what is much more important in the educational plan is the improvement of this personality, the cultivation of creative activity [L.4;5;] .

Nurturing creative activity is one of the methods of preparing students for creativity. During classes, the teacher monitors the students' activities, eliminates mistakes, constantly encourages students to discuss, including when discussing the upcoming assignment, and uses problematic questions .

In the process of solving creative problems, schoolchildren are taught to apply logical techniques of analysis, comparison, classification , abstraction, to use technical drawings, drawings, diagrams, graphs, to consider technical objects from the point of view of compliance with their various design requirements , to identify the advantages of some designs over others [L.5;].

Conclusions.

1. Creating problem situations in a technology education lesson , solving certain problems activates students, develops their independence and technical thinking.
2. Technological training is carried out by considering the use of devices in practice, but also when schoolchildren are involved in their improvement and design.

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