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Research Article

CONDITIONS FOR THE DEVELOPMENT OF COMPETENCIES RELATED TO THE CREATIVE AND SOCIAL ACTIVENESS OF STUDENTS IN TECHNOLOGY CLASSES

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ABSTRACT

In the article there elucidated that at the current stage of the development of our society, technical enhancement has increased and passed to technological flourish, and the current development is connected with technological one, especially in technology classes it is necessary to promote learners their social and creative activeness.

KEYWORDS

Technology classes, technology thinking, social and creative activeness.

INTRODUCTION

The changes taking place in the current stage of development of the society have sharply increased the demand for people who bring new meaning to the life of society, who can solve modern and future problems, who can bring new meaning to the life of society in the production and social spheres. [1] That is why the main problem of the educational system with the modern theory of teaching is considered to be the achievement of turning the acquired knowledge into a tool for creative mastery of the world. [2] In order to achieve this, the advanced countries of the world are paying great attention to the development of technological education based on the importance of innovative technological enhancement, and students are being trained to develop their creative abilities and are promoted to be engaged in creative tasks.

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Without young people with such qualities, economic renewal cannot be achieved in the changing social life. It should be noted that creative activity and technical thinking of students are formed in technology classes (3). Because, as a result of teaching technology classes based on the general knowledge acquired from all subjects, students are directed to create a ready-made product, to develop thinking and design skills, to search for new things, and young people are ready for effective and high-quality work in the fields of production, science, and service.

We see that technological science is an important and necessary component of general education, which enriches students' opportunities to apply knowledge of the basics of science in practice, design, construct and make products, and serves to develop technological thinking skills. Currently taught technology does not allow students to express themselves. As the share of humanities in educational institutions increases, less attention is paid to technological education. Normative educational documents and educational methods aimed at emphasizing concrete knowledge and achievements and remembering them to students still remain dominant. Such a situation does not meet the objective requirements of today's society, which should possess technology listeners. In this sense, methodical researches that lead to effective results through the development of technological thinking in educating students by directing them to the tasks of creativity are considered very relevant today.

In fact, the development of teaching technology that provides developmental teaching is considered one of the most important issues for science and practice in teaching all subjects. Developmental teaching methodology requires the construction of this educational activity based on a different principle and qualitatively enriching it with new knowledge. The essence of such teaching is that the development of the student consists in creating conditions in which both the teacher and the student become the main task. In current modern pedagogy, there are several types of theoretically based and experimentally tested learning technologies for developmental teaching [4] It is proved in the works [5,6,7] that the development of the technology of teaching is based on the need to develop thinking, and that its development plays a very important role in the mental development of students and their independent creative activities. Also, psychologists also emphasize that the main emphasis in developmental teaching technology is on the development of thinking, and that students can learn to independently solve problems based on the development of it and other cognitive processes [8].

It can be seen from the conducted researches that in the methodical works aimed at the formation of thinking in the technological direction and the development of creative activity, which are important components of developmental education, the separate elements of these components are scattered in different directions and include many types of activities of students. In this sense, they cannot sufficiently ensure the effective development of creative activity and technological thinking of future technology teachers in educational activities.

Although the main goal of teaching technology is to develop students' creative abilities, there are hardly any systematic teaching methods that help technology teachers to effectively solve such tasks in addition to imparting knowledge. Today, there is a lot of information about the founders of technological thinking and the ways of their development.

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Therefore, in our opinion, the main idea in the development of technological thinking and the development of a teaching strategy is to identify the elements of technological thinking and to develop didactic bases for the use of practical methodological technologies in their development and formation.

At the same time, by improving the methodology of developing technological thinking activities of future technology teachers, didactic goals, tasks, contents are integrated, and development of one of the main elements of the learner-centered pedagogical process is achieved.

The basis of the research methods is the learner-centered teaching methods based on the modern teaching-concept of education, the instructions on the methodology of pedagogical research and the ideas devoted to the use of information technologies in the educational process. Also, research methods include such elements as documents, programs, methodical literature, technical means of teaching and innovative technologies of teaching.

The main part. The first and most important condition for students to be able to solve a problem is that they have a basic knowledge of the problem. Knowledge is an important resource in the development of thinking. Another condition for the student to be able to enter a problem that is new for him is the formation of mental activity that can independently search for ways to solve the problem from sources. That is why it is not for nothing emphasized that the beginning of thinking is in a problematic situation. Based on the analysis of different forms of thinking, S. L. Rubinstein divided thinking into types, which is determined by the specific nature of the issues that are assigned to them and need to be solved in different people, and showed that one or another type of thinking is formed by the nature of the activity [9].

We leave all the questions related to the problem of types of thinking and focus only on the problems of formation of technological thinking, which is necessary for future technology teachers. At the stage of technical development 50-60 years ago, great attention was paid to the technology and methods of teaching, developing technical thinking. This implies that technical thinking, like all other types of thinking, is carried out with the help of certain mental operations, that is, comparing, contrasting, analyzing, synthesizing, classifying and others. Their characteristic feature is that such thinking processes develop during technical activities and with the help of technical materials. Initially, in 1975, T.V. Kudryavtsev mentioned that the structure of technical thinking consists of three interrelated components - conceptual, imaginative and practical, and failure to form any of them negatively affects the successful solution of a technical problem [10]. Later, the structure of technical thinking was studied by M.V. Mukhina in 2000, and over time, the issues of technical development differ from those of 30 years ago, and if earlier its three components were sufficient for the development of technical thinking, now additional components such as speed and knowledge of technical language are also needed, it was founded that at the same time, the technology of ensuring the formation of five components in an organic relationship was also proposed for the development of technical thinking (11).

20-25 years later, at the current stage of development, the rapid development of computer technologies, industry, communication systems, transport, urban infrastructures, space, nanostructures, and technical

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progress is growing and turning into scientific and technological progress, which affects the development mechanism of modern civilization, the application of all knowledge systems which has become clear that it will lead to strong changes in the world and that maintaining the balance of sustainable development of the world is connected with profound changes in people's activities. If the activity of a person in the field of technology is aimed at satisfying people's demands for production resources, the current technological activity has a very broad and deep meaning, and it requires the activity of people to be ordered and organized according to the goal.

Technological activity includes all types of scientific knowledge, skills, intuition, and experience, and includes the changes of the environment, nature, and culture within the framework of the mind, with the help of methods, stages, and operations in a certain sequence in the material, spiritual, and social spheres. Wide opportunities for technological activity are opened, especially in technology classes, technical and technological issues are solved in a full system style with the help of the synthesis of science bases and brought to practical application, and technical issues are considered in technological activity. Due to the transition from technical development to technological development in the current period, we want to focus on the formation of technological thinking by developing the above-mentioned structural organizers of technical thinking, because within technological activity lies the solution of technical issues. Therefore, first, in order to understand the full essence of technical thinking, we will consider the content of each component in its structure and their interrelationship according to the comments of T.V. Kudryavtsev and M.V. Mukhina [10,11]. According to them, technical thinking consists of the following components.

The conceptual component ensures that technical concepts are formed. Each physical, mathematical, technical concept has its own characteristics. System characteristics of technical objects are reflected in technical concepts. For example, motor, condenser, generator. Technical concepts contain the essence and internal content of a technical object. The formation of such concepts plays an important role in the development of technical thinking.

Figurative (figurative, image-based) component helps to create a complex system of figures and manage it. Figurative thinking serves to move from idea, scheme, hypothesis to image, that is, being able to embody an object in front of one's eyes is of great importance in clarifying thinking.

Practical component. It provides for the practical verification of the result achieved during the activity. A solution to a theory will not be suitable for research if that solution has not been tested in practice and has not confirmed the theoretical idea. This component has a special role in ensuring the integrity of thinking.

Technical language component. With each new scientific direction and series of discoveries, whole new fields of production arise and make certain demands on people's technical knowledge, opportunities and abilities. That is, they should know a special language, the language of technology, in order to master many drawings, diagrams, schemes and functional structures for solving modern technical issues. Therefore, the special material for the construction of a scientific theory is its own language. The language of science and technology is

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characterized by logically strict, clear meaning and clarity of used terms and concepts. In this sense, one of the main components of technical thinking is technical language.

Quickness (efficiency) component. Agility refers to the ability to quickly correct or get things done in a timely manner. Quick thinking has three functions: problem solving, planning, and decoding. The function of solving a problem requires the development of quick thinking that can analyze all solutions in order to quickly choose the most convenient solution from among many possible options. The planning function includes the search for the exact time, means and methods of realizing the production goal. Decode functionality includes converting various signal representations to control object representations. It should be said that in the full formation of technical thinking, the five components: conceptual, figurative, practical, technical language and speed must be developed in harmony.

Since the main emphasis is on the development of thinking in the development of the technology course, the componential structure of technological thinking should be considered on a wider scale compared to technical thinking. If we take into account that technology today is becoming a highly complex and dispersed system of knowledge about the management of every production process and the continuous rationalization, modernization and innovation of activities in the corresponding field, it can be seen that the technological process requires large-scale thinking.

In addition to the five components known to us from technical thinking, the componential structure of technological thinking, which is important in the development and education of students, should also include the following components in our opinion, i.e.: thrift, consumerism, adaptability to diversification, critical analysis. The necessity of their introduction is related to the fact that technological development is taking the place of technical development in the economic and social life of today's society. Indeed, to put it simply, while technical thinking is focused on solving a technical problem, technological thinking is focused on activities from the inception of the problem to the final finished product. In this case, it is necessary to try to find an answer to the given problem, to determine the preconditions related to achieving the goal, and to achieve a solution to the problem in these conditions. Examples of technology products range from simple children's toys to high-tech products such as light-emitting diodes and various chip structures.

All this is achieved with systematic technological activity. Currently, technological activities from raw materials to finished products are developing due to the careful coordination of the sequence of various operations and the use of computer programs in the preparation of products in many professions.

The science of technology, by its very essence, consists in identifying and using the most efficient and cost-effective production processes in practice, in addition to preparing students to work independently in the market economy. In the conditions of today's market economy, the role of paying attention to savings in any technological activity is getting stronger, priority is given to waste-free or low-cost technologies. In this sense, thriftiness has the right to be one of the necessary components of technological thinking. In addition, it is insufficient to satisfy human needs by solving the technological problem in a systematic sequence.

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The fact that any technological product satisfies the needs of others in addition to its own needs, and even needs to be exported and have its own brand, is becoming the foundation of today's modern development. Therefore, it has become one of the priority tasks of every country to ensure that the product of technological activity has a charming design and is affordable. It is a very necessary issue to increase students' interest in making products with their own brand and to be able to express their identity, and to form a sense of creating a marketable product. In this sense, it is necessary to develop this component of thinking, which is the basis for the technological product to be purchased.

Another component - the need to pay attention to diversified technology is that even the most convenient and marketable product achieved during technological activity must immediately give way to a new product that more fully satisfies human interests and creates more comfort in the midst of rapid developments and life changes that are taking place in a short time today.

Therefore, when creating an initial technological activity system, the distribution of tasks in a certain sequence of parts should be adapted in such a way that when moving to a new activity, it is possible to quickly start a new activity by adjusting some parts without updating the entire system. Although such requirements are most relevant for large-scale technologies, they are also becoming increasingly important in technological activities across professions. An example of this is the ability of Chinese entrepreneurs to rapidly adapt their technology to market demand. In this sense, the formation of such thinking skills in preparing the young generation to work in modern professions is emerging as a necessary requirement of the time [12,13].

Another component, critical analytical thinking, is also the most general component and should always be central to any activity. The importance of this is that it is important for the students to learn to discuss the problem in groups and take a critical analytical view from different angles during their technological activities, which helps to get a high-quality and optimal solution.

In substantiating the founders of the above structure of technological thinking, we started from the technological activity in a broad sense, which is carried out in a systematic sequence in harmony with each other and is aimed at finding a solution to the technological problem taking into account all conditions. It should be said that these components are common to all types of technological activities and can be used in practice to develop the technological thinking necessary for the development of students in all technological educational subjects.

Conclusion. The scientific and practical innovation of the research is that for the first time, it was shown that the development of technology has increased in the current stage, has passed to technological development, and that the current development is connected with technological development, and it is necessary to develop technological thinking in technological sciences.

In technology classes, in order to determine the constituents of technological thinking, which is the basis of developing and teaching students, developing the structural constituents of technical thinking, for the first time, four new constituent components

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(thrift, consumerism, diversification, critical analysis) were proposed for the first time, and their consideration is effective and high-quality technological It was determined that the components are of great importance in having a solution.

The didactics of problems and assignments aimed at developing all its constituents in the development of students' technological thinking was developed on the example of topics related to the technology of making sewing items.

The practical importance of the research is that the proposed methods and instructions for developing the founders of technological thinking can be applied to other technological disciplines.

Moreover, consideration of all the constituents of technological thinking will greatly aid in achieving effective outcomes for technologically engaged students and technology educators.

Students who have learned to develop their thinking in technological directions, develop their worldviews in a timely manner, and acquire the level of intelligence to find solutions to problems independently.

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