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THE SCIENTIFIC-METHODICAL SIGNIFICANCE OF THE DEVELOPMENT OF TECHNICAL-CONSTRUCTIVE COMPETENCE OF FUTURE STUDENTS OF TECHNOLOGY SCIENCE

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Abstract: Development of technical thinking and creative attitude to work is one of the most important tasks of educating a new person. For this purpose, in the research work, the future technology teacher, technical creativity will arise as a result of our scientific research on the methods of formation of construction knowledge, skills and skills and the use of computers in the construction process. The modern world level of the development of information and communication technologies is such that the creation of a national system compatible with the integration of the infrastructures of the world information space and the national information and computing network in the republic is an important factor in the effectiveness of the national economy, management, science and education. These problems are very complex and at the same time urgent for our republic. The results of the implementation of economic, structural and other changes currently being carried out depend on how and in what time frame the problems related to informatization are solved in the republic. The creation of electronic educational tools for educational subjects further expands the possibility of using modern information and communication technologies in teaching these subjects. This, in turn, is the main factor of students' in-depth assimilation of knowledge in these subjects and increases the quality and efficiency of education. The implementation of such efforts will further accelerate the wide application of modern pedagogical and information technologies in the educational process, equip professors and teachers with advanced pedagogical knowledge and technologies, improve their skills, and use the experience of foreign higher education institutions. provides an opportunity for in-depth study and introduction of their effective methods and tools into our national education system.

Keywords: creativity, virtual laboratories, rationalization, construction, electronic textbooks, professional competence.

Enter. The need for 3D modeling and design of technological processes in the development of technical and project competence of the students of the "Technological education" direction is increasing in the present era, when the processes of globalization and integration of education are deepening in the world. There is no limit to knowledge in the world. Science, especially scientific activity, is very important for the development of any country in the world today. Because many areas of social life widely use scientific achievements and scientific developments in their development. Today, the reforms in the field of education in our country, according to the words of our President Shavkat Miromonovish Mirziyoyev, serve to develop young people, who are considered the future of our country, as mature individuals in all respects for the development of our country, and to develop them into competitive personnel. In the 21st century, when science and technology is rapidly developing, foreign experiences and new projects are entering every field, and changes are taking place in the development and education sector of our country. The reforms carried out in the field of education in order to fully preserve the rich cultural heritage and

historical traditions of our people, and to widely promote handicrafts. It serves to increase the quality of education in accordance with the fulfillment of educational standards.

Literature analysis and methodology. In the Bulletin of the Oliy Majlis of the Republic of Uzbekistan, issues of 11-12, 1997, the legal documents of the Republic of Uzbekistan widely covered the opinions on the training of future teachers. In the electronic journal "Didactic possibilities of using programmed educational tools in the training of teachers of future technological sciences" A.R. There are many opinions about the didactic possibilities of using programmed educational tools in the training of students. In 2014, Muslimov N.A., Koysynov O.A., Abdurahmonov Sh., Abdullayeva Q.M., Gairova N.S. The methodical manual "Technologies of formation of methodical competence of teachers of future vocational education" also mentions about future vocational education. Technologies for the formation of methodological competence of researchers have been widely expanded.

Scientists of our republic: N.A.Muslimov, SH.S.Sharipov O.A. Ko'ysinov, N.N. Karimova, Y.R. Najmiddinova, J.R. Turmatov, R.Kh. Fayzullaev, K.T.Umatalievalar, V.I. Baydenko, A.A. Verbitsky, N.A. Grishina, E.F. Zeer, I.A. Zimnaya, O.N. Yarigin, N.V. Kuzmina, A.I. Conducted by Kuleshova, A.K. Markova, N.V. Skachkova, A.V. Khutorsky, C.R. Berger, W. Grabe, J. Harmer, L. Harvey and others. Pedagogical-psychological foundations of the use of programmed educational tools in higher education institutions, significant results on the theory, methodology and practice of informatization J.A.Khamidov, O.Kh.Torakulov, M.M.Aripov, S.S.Gulomov, N.I.Taylakov, U.Yu.Yuldashev . It was reflected in the works of Batashov, M.I.Belyaev, D.Yu.Burenkova, P.D.Volkov and others.

Discussion.

 Development of technical thinking and creative attitude to work is one of the most important tasks of educating a new person. For this purpose, in the research work, the future technology teacher, technical creativity will arise as a result of our scientific research on the methods of formation of construction knowledge, skills and skills and the use of computers in the construction process.

Based on the above, future technology teachers should have the following qualities. The structure of professional-edagogical competency, intellectual competency, creative competency, information processing competency of the future technology teacher.

Qualities of professional-edagogical competence include: technical-constructive competence, support competence, news competence, communicative competence, intellectual competence, research competence, social competence, creative competence, etc.

Technical-constructive competence - mastering advanced technologies that enrich professional-redogogical knowledge, skills and qualifications, being able to use modern tools, techniques and technologies.

Communicative competence is the ability to communicate sincerely with all participants of the educational process, including students, to be able to listen to them, to have a positive influence on them.

Maintaining scientific research - a student should always be a researcher, at the same time he can expand his knowledge, correct his mistakes, contribute to the development of humanity, promote new discoveries.

Social competence - the ability to show activity in social relations, the ability to communicate with subjects in professional activities.

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Creative competence is a critical and creative approach to editorial activity, the ability to demonstrate one's own creative skills.

The future technology teacher: guiding the process of mental and physical actions performed by students and ultimately forming in them the knowledge of work tools, tools and processes, as well as the practical skills and competencies necessary to perform production work in a specific field. , means a person who is engaged in activities aimed at developing personal qualities and thoughts that allow choosing a profession and consciously participating in labor activities for the sake of society and individual well-being.

Acquisition of information technologies: computer literacy, the ability to use information technologies in the process of technology education, to acquire skills, to use information resources.

Electronic textbooks: a teaching tool designed for the use of educational methods based on computer technologies, which can be used for independent education and effective mastering of educational materials. In the electronic textbook, the educational materials of the science are used for students with interactive methods, psychological and editorial aspects, modern information technologies, audio and video animations.

Use of electronic textbooks: electronic publications, sample and work plans, as well as sets of exercises and problems prepared for specific important sections of the subjects for the requirements of this qualification, map and scheme albums, structural atlases. dirlom project - an electronic resource with instructions and references.

Virtual laboratories: a programmed complex with the possibility of remote access and presentation of the processes taking place in real objects of study through computer simulation.

Professional competence: a network of competences of independent thinking, goal-seeing, activity planning, content analysis, reflection, personal assessment of activity, consisting of elements of logical, methodological and social activity related to specific objects of study set of knowledge and skills in giving.

Information literacy: the ability to independently search, analyze and select necessary information, analyze, change, store and transmit it using audio-video tools and information technologies.

Communicative competence: mutual relations, their methods, mastering the language that takes priority in the communication process, skills of working in groups, knowing how to organize and conduct various spiritual and educational events in the team. Constantly and rapidly changing technologies and updating of knowledge require the ability to adapt to modern conditions and the pursuit of new knowledge. For this, it is necessary to teach students to learn new knowledge independently.

If we use these terms to provide information about the development of technical and design competence of future technology teachers, the ability of technology teachers to design, increase their creative activity, the ability to work with diagrams and schemes are acquisition skills.

At the same time, the introduction of the results of the scientific and research work conducted on this issue into the teaching process of the students of the higher education institutions can help to increase the level of preparation for the technical-constructive competence among the graduates of the technology department. In the new conditions, technical-constructive training is a mechanism that expands the capabilities of a person in various fields of activity, in particular, to teach students to perform creative projects.

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It takes on important editorial tasks, such as the development of unique methods, methods and tools for the formation of social and professional preparation of future technology teachers, technical-constructive competency. Today, computer technologies and websites are widely used in all fields. In particular, computer programs are widely used in the technical construction and modeling of products, creating animated images, videos, virtual stents, and electronic textbooks. It serves to increase students' technical-constructive creativity, technical thinking, creative approach to work, social and professional skills, special competence in designing and modeling their products.

"Technology" plays an important role in the development of technical and constructive competence of future technology students. Improving the scientific method of science, strengthening its material equipment, organizing socially useful and productive work, increasing its educational and economic efficiency and harmonizing it with education, improving the preparation of students for work is one of the urgent tasks of today. While the general didactic principles are used in the technology class, like other subjects in higher education, it also has its own characteristics. Students are not engaged in the activity of knowing the technical project, but in the activity of creation. In technical science, technical and constructive means, devices and processes are not simple learning objects, but serve as educational tools, didactic material, and technical means of education that activate the work of students. Technology as a science teaches these and other features.

It will consist of studying the technical and constructive characteristics of the future students of technology and preparing various products from them based on the characteristics of these materials. This process consists of applying the technical knowledge of future students of technology, analyzing the quality level of the finished product through creative and technical thinking, and providing students with professional knowledge. Training students and young people to work will be a great opportunity in their future life. It is necessary to develop students' work skills and abilities such as creativity, technical knowledge, team work.

The famous idealist philosopher E.L. In one of the most famous philosophical dictionaries of the late nineteenth century by Radlov, creativity is related to the creation of something, the ability to create is unique to God, and man can only perform relatively creative actions. Along with such statements, attention was paid to the presence of unconscious processes in the creative process. Later, as the scientific study of various types of creativity changed, so did the attitude towards it and the definitions given to creativity.

Creativity is an activity that contributes to the creation and discovery of a specific topic and previously unknown things. Creativity in social practice is measured by new categories such as discovery, invention, rationalization. Recent articles have provided blind information about innovative activities related to the introduction of innovations into organizational and technical processes. We can call this activity rationalization.

Rationalization is for the purpose of improving the use of existing technologies (we only consider the aspect related to solving technical problems). So we can say this: the inventor is primarily interested in the final effect, the function, the designer is interested in the functional device and the rationalizer, and some personal purpose of the finished device is to use it more rationally.

Constructivism is a creative activity of an intellectual and practical nature carried out by students. Independent work of students under the guidance of a teacher. If we focus on the working

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definition of creativity, it is reasonable to associate it with solving new problems or finding new ways to solve previously solved problems, solving various problems and situational difficulties that arise in production. 'looks. and everyday life. Before looking at the structure of the creative solution to the new problem, let's touch on the general information about the types of technical creativity. Types of professional creativity include invention, construction, rationalization, design. There is a close relationship between all types of technical creativity. In the first period of the rapid development of technology, such a division was not observed, and scientific literature mainly talked about inventive activity. Currently, there is a scientific and practical division of the proposal of discovery, invention and rationalization, which are carried out not only in relation to technical objects. Thus, discovery is understood as the establishment of a previously unknown objectively existing property or phenomenon. An invention called a new solution to the problem of production, culture, etc. has such positive significance. Inventions are divided into constructive (devices), technological (methods) and related to the creation of new substances.

Currently, under the guidance of future technology teachers, in addition to forming the initial technical knowledge and skills of students, involving them in productive work, it is necessary to develop technical thinking and constructive creativity skills in boys and girls.

In order to prepare the future teachers of technology to manage the technical construction and design activities of the students, students should master construction and modeling work. The construction process requires independent thinking to determine the shape of the detail and the possibility of preparing it in the training workshop.

If the perfect young generation understands technical creativity, the secrets of technology, and if education is given in this direction, if work is done based on the achievements of science and technology achieved in our republic, then by understanding its roots more deeply, they will contribute to the achievements of innovative technicians, science and technology in the future. In addition, these young people should have the ability to invent better machines from foreign products and equipment and be able to serve in this way.

Practical training in technical design and modeling means consistent organization of work. This activity includes both collective and individual types of work, and these works are organized by the editor, which provides for active, conscious and solid mastering of educational materials by students.

It is appropriate to use the frontal form of education in preparing the same type of devices, models and layouts for students in technical construction and modeling. In this case, the editor selects objects of appropriate complexity for the students. Using the frontal form of design education, they prepare the whole group to deal with only one object of modeling, and this event reduces the time spent on their preparation, the volume of technical-technical documents, the same type of tools and devices, similar work methods. shows, etc. greatly reduces. Practical training on technical construction and modeling means consistent organization of educational and labor activities. This activity includes both collective and individual types of work, and these works are organized by the editor, which provides for active, conscious and solid mastering of educational materials by students.

Technical construction and modeling are selected taking into account the nature of the parts and the forces acting on the assembly units. In this case, it is necessary to take into account the characteristics of the materials obtained from the relevant dictionaries.

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Appropriate materials are selected for technical construction and modeling, taking into account the working conditions of details and assemblies, the nature of birds affecting these details and assemblies. It is necessary to take into account the properties of the material, which can be obtained from the relevant parameters.

As a result of research in the field of science and technology development of students, it can be concluded that the necessity of fully introducing computer technologies into the educational system is based on the following:

- firstly, when comparing computer technology with previously used technical means of teaching or didactic materials in the educational and educational process, the technical-operational capabilities of computer are inexhaustible;

 - secondly, it is explained by the fact that the training of personnel with knowledge of modern information technologies plays a decisive role in the development of science and technology.

According to vision researchers, technical-constructive competence will qualitatively change the means, methods, form and content of education and training, creating the following opportunities:

- brings out and develops the personal abilities of students, aligns them with their individual qualities;

- forms students' ability to know and strive for excellence;

- always updates the method, form and content of education and upbringing.

It is known that the teaching method is the method of teaching in the educational process and the method of joint activities of students aimed at achieving a specific goal.

The minds of students are progressing with the development of the times, so it is natural that they demand blind things from their studies. Today, students have the opportunity to pass the lesson with the help of various digital technical tools. The computer as a teaching and technical tool is such a backup source that the teacher will be able to save a certain amount of hours allocated to the lesson when working with students. In particular, the training course in the field of "technological education" such as the design of technical processes, the basics of creative-constructive activities, 3D modeling sciences creates wide opportunities.

A student will be able to independently and correctly perform the task given to him only if he can fully master the topic and visualize spatially. In order for the student to fully master the subject, he should listen carefully to the lesson, and in order to concentrate, it is necessary to awaken his interest in the lesson. Such curiosity mobilizes students to actively search for ways and methods to satisfy their desire to learn and understand.

Psychologist M. Davletshin believes that the success of education depends on a number of psychological factors.

The result.

Something that is interesting, fun and enjoyable will keep your attention for a long time. Motivation does not arise by itself in the learning process, its creation requires great skill from the teacher.

According to scientists, the activation of the learning process comes from the existence of the students' personal need for knowledge. When a student clearly knows the goal he has set for himself (if he has a high level of professional training) and is able to determine the amount of knowledge needed to achieve this goal, he feels the need to acquire that knowledge. An active

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motivational environment is created if the educational material given to the students is interesting and if the training is able to convey the extent to which future professionals can improve in their professional formation and future.

Therefore, developing students' constructive abilities and teaching them in a new, interesting way, using digital technologies as a computer tool will give effective results. In the conditions of modern education, increasing the activity of independent work of higher education students, developing their creative abilities requires the use of advanced editorial technologies and new generation educational literature. (26)

The professional competency of technology teachers is evident in the following cases:
- in complex processes;
- performing unclear tasks;
- using conflicting information;
- being able to have an action plan in an unexpected situation.

Also, competence requires constantly enriching professional knowledge, learning new information, understanding important social requirements, searching for new information, processing it and being able to apply it in one's work.

To work successfully, each teacher must have high editorial skills and a broad outlook. Only then will he achieve great results by spending little work, and creativity will always be his partner. Only a talented and talented person can have editorial skills. The effectiveness of the editorial activity means that the technology teacher should know his subject well, have an understanding of related subjects, be able to explain the educational material to the students in an understandable way, and allow the students to think independently and actively. should arouse interest, take into account the knowledge, level of maturity and mentality of the students, be able to imagine what they know and what they do not know yet. A skilled and experienced teacher can put himself in the place of his student. The student's ability to enter the business world depends on his ability to understand the student's personality and his current mental state very well. should conduct psychological observations. Such a teacher can quickly understand the subtle changes in the mentality of his students. Speaking in education is the ability to clearly and clearly express one's thoughts and feelings.

Summary.

Technical-constructive competency is not formed at once in training. He develops on the basis of constant work on himself, research and skills. A student's acquisition of high professional skills is carried out directly through the continuous education system. It allows to analyze the educational activity of advanced training, which occupies a key place in the continuous education system.

Today's teacher requires a correct understanding of the requirements of advanced educational technology of teaching, initiative, awareness of the news in his field and the ability to introduce it into his classes. Successfully solving the problem of creating cooperation between teachers and students in the educational process, creating a friendly environment, to the level of knowledge, skills, and personal human qualities acquired by science teachers and school management. depends.

First of all, the teacher of technology:
- soft-hearted, affectionate, sweet-spoken, loves students the way they are;

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- to understand that giving love, pride of heart to students, creating a friendly atmosphere in the audience and developing students' learning motives are motivational methods;

- to feel grateful that the fate, happiness and future of students are responsible for it, to respect their personality and dignity;

- in any educational situation, it is necessary to refrain from bullying, insulting and shouting, insulting and threatening students;

- to be able to understand students, to appreciate their feelings, to help them overcome their worries and sufferings, to know their characteristics, interests and needs in youth and psychological development.

In the course of his blind-sided and complex activity, the teacher of technology has the task of making the young generation educated and moral. In this regard, today the following requirements are imposed on the student:

- deep knowledge of one's subject and adequate mastery of its methodology;

- to have a broad scientific outlook and deep faith;

- deep understanding of social need and moral necessity;

- deep understanding of social and civic duty;

- to be socially and politically active;

- he loves his profession and children;

- to be intellectually intelligent and strive for innovation;

- deeply study the history, national values and traditions of their people and promote them;

- to have qualities such as editorial observation, organization, demandingness, persistence, restraint, truthfulness, self-control

- must be fully capable of his profession and possess editorial tact (decency).

Vocational competence of technology education:

- to have knowledge of redagogy and psychology;

- work on oneself;

- ability to plan, evaluate and feedback the educational process;

- to be able to understand the needs of students;

- formation of students' motivation;

- knowledge of information and communication technologies;

- innovation in the educational environment;

- perfect knowledge of his subject;

- knowledge of one of the foreign languages.

In short, in the editorial activity of every technology teacher working in the educational system, in the development of technical-constructive competency, the use of new methods, software training tools, continuous self-analysis, modern knowledge It is an important and urgent issue of today to direct all of one's knowledge and experience to the improvement of the educational system.

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