

Higher technical educational institutions Pedagogical features of development of technological culture of students

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Abstract: the article analyzes the factors of dialectical connection between the teacher and the subject of education in the process of formation of technoetic culture. Based on the analysis of the essence of technoethical culture and problem solving, it can be said that it is an integral concept, the components of which are based on technical features of technical knowledge, ethical culture, creative culture, aesthetic culture, innovation culture, management culture.

Key words: higher technical education, techno-culture, industrial civilization, technological information, qualification training, pedagogical skills, thinking machine

1. INTRODUCTION

At present, the work to ensure the sustainable development of society is closely linked with the achievement of socio-economic goals, the development of a harmoniously developed personality, the protection of young people from the negative effects of man-made civilization. Among these problems, the need to build and enhance immunity, which can protect against environmental crises, popular culture and negative information attacks that negatively affect young people, is one of the main tasks. In particular, the solution of these tasks is directly related to the ongoing global changes, development trends, ie the process of increasing the desire to live only for profit as a result of the deepening of the fundamentalism of market economy relations. Mankind is constantly pursuing "development" and working to ensure it. But he does not recognize that this move has led to a depletion of natural resources, leading to environmental crises. "Because the more highly educated, highly qualified professionals in our society, the faster and more efficient the development will be. One of the most important issues is to further increase the scientific potential of higher education institutions, to expand the scope of training of scientific and scientific-pedagogical personnel "[23]. It also ignores

the fact that each person as a person is a symbol of value, a representative of spiritual culture, in some cases denying the content of his social goals. Another peculiarity of this process is that there are cases when education is viewed as a mechanism that helps each generation to become a subject that meets the requirements of a market economy, rather than performing the function of ensuring the spiritual growth of each generation. In this regard, it should be noted that at present, efforts are being made to find appropriate ways of social development, and in this process the task of ensuring the adaptability of society to these mechanisms of development is becoming increasingly important. In the structure of such relations, that is, among the existing theoretical ideas, scientifically based ideas, the concept of ensuring the sustainable development of society has a special place.

2. MATERIALS AND METHODS

The twentieth century was the age of technology, the period of formation of industrial civilization. Ultimately, the role of technology, its social significance, has changed radically. "It has also become a crucial area for the future of humanity. Technological progress has posed very important challenges to humanity in an

industrial society. Issues such as environmental pollution, depletion of natural resources, the threat of nuclear war have become a tragedy of the last century. If such a process continues, the question of the inevitability of the destruction of world civilization has been put on the agenda. It has become clear that man-made tragedies will be very difficult to prevent unless a techno-cultural culture is formed in society and the social worldview. To do this, it is necessary to pay special attention to the formation of a techno-cultural culture in the education system, in the training of personnel in higher technical education institutions, to develop new approaches to the correct assessment of human performance, its future and social consequences "[204]. In such circumstances, there is a need for techno-ethics. It can be said that his duty to humanity is to show the essence of technology and its place in human life, as well as to reveal the essence of technology.

3. RESULTS AND DISCUSSION

The need for high qualification of graduates is emphasized in the state educational standards and is one of the priorities of modernization of higher education in the new era. Such a new, innovative approach to the training of qualified specialists is one of the important directions in the development strategy of the Republic of Uzbekistan for 2019-2021 [16]. A scientific, competent approach to solving this problem is needed. The main goal in the process of higher technical education is to bring up a person who is free-thinking, humane, able to act on the basis of justice, has multifaceted skills. Specialists with the above characteristics have the ability to solve social and professional tasks encountered in everyday life. An innovative approach to higher education is radically different from the plan-based approach to training that has hitherto been a priority in the training of specialists. A modern approach to the formation of professional skills of specialists, ie its content,

technologies, methods, is a factor in improving the updated higher education and a way to educate bachelors and masters in accordance with the new era. In this process, higher education must fulfill the task of forming humanistic, spiritual, moral qualities in its future professionals. It should be noted that this process is closely linked with factors such as accelerating socio-economic development, changes in human working conditions.

There is both a time and a need to develop a curriculum, program and introduce the subject of "Techno-meaning", which teaches students of higher technical education to remember the moral responsibility in the creation and use of technology and directs their knowledge to innovation.

- The main purpose of teaching this subject is to train future technicians in technical ethics and responsibility, to acquire skills in the effective use of professional knowledge, methods and tools, to solve existing problems in the development of new ideas, new solutions, practical application of existing material and spiritual potential. you can:

- - To equip techno-cultural culture with theoretical knowledge in the development of socio-cultural values, a set of conscious actions aimed at its creation;

- - to acquaint with axiological, intellectual and functional bases of activity of techno-cultural culture, to give an idea about factors of its realization;

- - to form an understanding of the general social and creative nature of the activities of the person who creates and implements innovations, as well as the features of his embodiment in a specific professional activity;

- - to develop the ability to promote new ideas and analyze the process of its implementation, and to rely on universal morality;

- - substantiation of new ideas for future professional activity, formation of skills for their practical implementation;

- - to develop the ability to perform strategic, tactical, operational tasks related to the demonstration of techno-cultural culture;

- - along with the acquisition of the values of techno-cultural culture by students, the identification of the necessary individual potential in their creative activity, creating the basis for its further strengthening;

- - work with global technical and technological information, the formation of

skills for evaluating new technical and technological projects, etc.

Based on these priorities of educational activity, it can be said that the problem of formation of techno-cultural culture in future technical specialists includes many independent issues and defines a number of conceptual rules. These require the development of specific technological issues in the formation of techno-cultural culture in students.

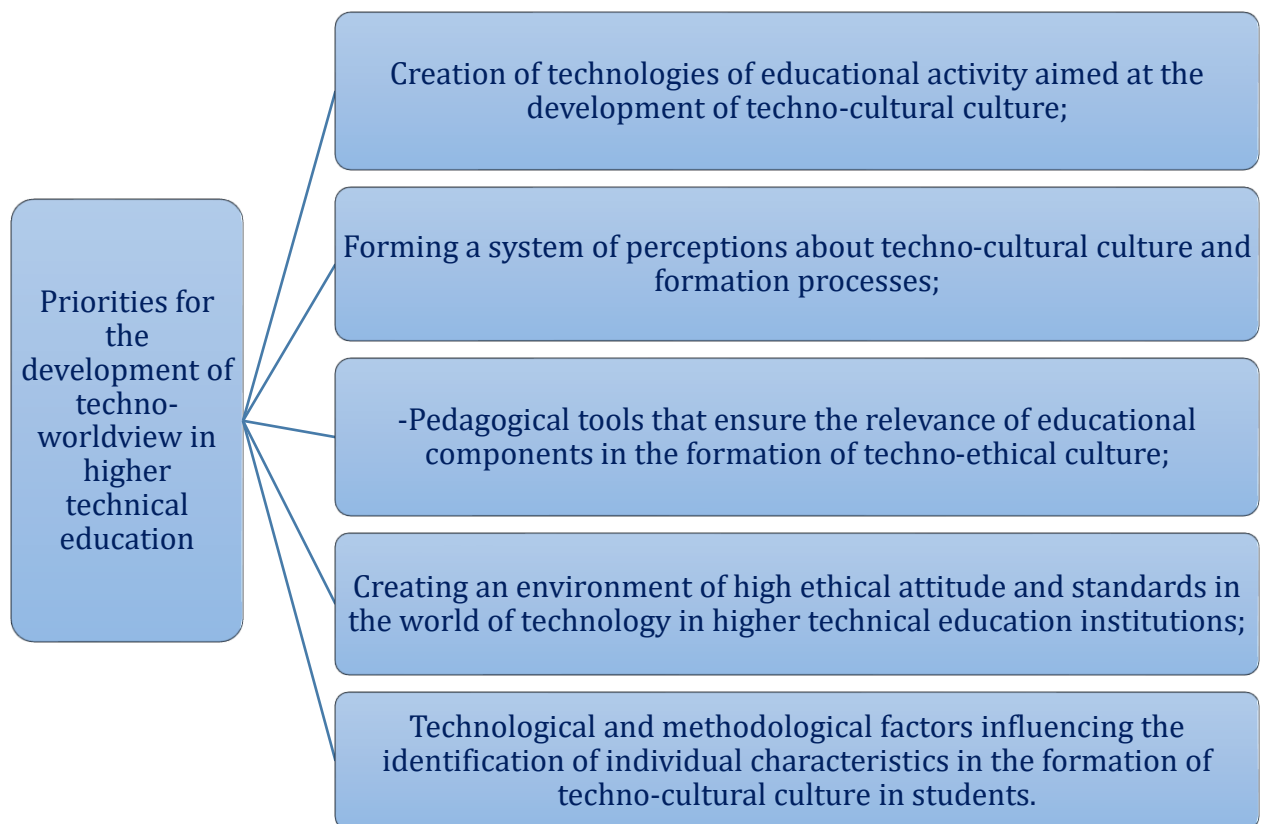


Figure 1. Priorities for the development of techno-worldview in higher technical education

In our opinion, in order to consistently achieve this goal, it is possible to introduce the teaching of "Techno-cultural culture" in all higher technical education institutions at the highest levels of education on a competitive basis. The main educational goal of teaching this subject is to promote the innovative idea of creating a competitive new product or service, which is viable in the context of

changing market requirements, to improve the work process through its implementation, as well as to create technology. , to form a culture of activity in the understanding of high moral responsibility in the use and improvement, the use of technology not for human management, but for the welfare and convenience of human life. The following

educational goals are achieved in teaching this subject:

- To inculcate in students theoretical knowledge about the vital importance of techno-cultural culture, its description as a way to ensure survival in the competitive world of technology, its types, the level of training for the formation of techno-cultural culture;

- Orientation of students to the development of techno-cultural culture in the classroom, extracurricular activities, independent work, research work, internships, ensuring the manifestation of technical ethics in higher education, other enterprises and institutions [161; 47].

In determining the exact direction of education, the disciplines required for a particular specialty or specialization, the optimal definition of the content of each subject, it is important to take into account the differentiated processes of differentiation and integration in the field of scientific knowledge. It is known that at the present time the need for the creation of new sciences, branches of science, in-depth study of specific current issues in the field of scientific knowledge is leading to the formation of new sciences. In this context, it is useful to offer integrated education aimed at the formation of a techno-cultural culture for technical disciplines.

Such processes, which require the scope and scope of innovative teaching, in-depth study of specific problems, require a clear direction of higher technical education, identification of disciplines to be taught in the specialty, specialization, their optimal content, most importantly, their integration into the teaching process. To this end, the focus is on the vertical integration between the fundamental and special sciences in each field, the strengthening of horizontal links between individual disciplines. Of course, strengthening the logical connections between the disciplines will lay the groundwork for improving the qualifications of future professionals.

Such an approach helps to analyze the innovative processes taking place in the field of engineering and technology education, to absorb the skills needed to conduct such creative activities independently in the future. Of course, on the basis of the problems encountered in higher technical education institutions, it is necessary to base certain criteria on the introduction of new disciplines in existing curricula and programs, which are widely introduced in practice. At present, methodological and scientific-methodological approaches reflecting such criteria are being formed. These include, in particular, the identification of subjects taught in higher technical education institutions, a modular approach to defining their content, the gradual transition from an orientation to the teaching of subjects to an education system aimed at the formation of competence.

Both approaches have a positive effect on instilling in students a wide range of knowledge about their future careers, its development trends, and, of course, the techno-ethical position, which is a new approach in the field.

In the State Program "Year of Science, Enlightenment and the Digital Economy" it is important to develop mathematics, chemistry and biological sciences, increase the quality of education and scientific efficiency in these areas. Radical improvement of the quality of education in mathematics, chemistry and biological sciences in our country, introduction of a completely new system of teaching these subjects in secondary schools, provision of educational institutions with modern laboratories, textbooks and other teaching equipment, involvement of qualified teachers in these areas, training and science - In order to establish close dialogue and cooperation between the fields of education, science and industry in the use of the results of science, the President of the Republic of Uzbekistan adopted resolutions in this area [15].

Within the framework of the proposed module "Fundamentals of Techno-Cultural Culture" in higher education institutions, it is necessary to improve two important components of the integrated education system - teaching and learning. One of the promising areas in higher education is the training of future technicians, taking into account the level of competence required for professional activity. Professional competence in techno-cultural culture is a concept that reflects the level of training required to understand the problems in the field in which the specialist works, to prioritize moral responsibility, to solve them at the highest level, to take full responsibility for the work he does.

The reality of the new era is that in today's rapidly changing world, professional competence has a new meaning, not only the effective use of methods, techniques and tools specific to reproductive activities, but also the introduction of innovations, innovative ideas where possible. It also expresses the ability to advance independently and make them a reality. Forming the preparation of future specialists in the field of technical

integration as one of the necessary requirements of professional competence is a very complex and multifaceted educational process. It would be appropriate to consider running it as a multi-level educational task.

In fact, an enterprise or institution committed to the introduction of a new technology, product or service will study all aspects of innovation, including technical and technological feasibility, before making a decision to promote the activities of an innovative firm. Hence, the point of view of the party interested in innovation shows that the overall success of the innovative project is convincing.

"An important aspect of techno-cultural culture is that it helps students to take a high ethical position in the creation, use and improvement of technology. In turn, the competence in techno-culture requires a methodologically activity-oriented approach"[204; 43]. In terms of an activity-oriented approach, three components of techno-cultural competence can be distinguished: instrumental, practical, and independent research (see Figure 2).

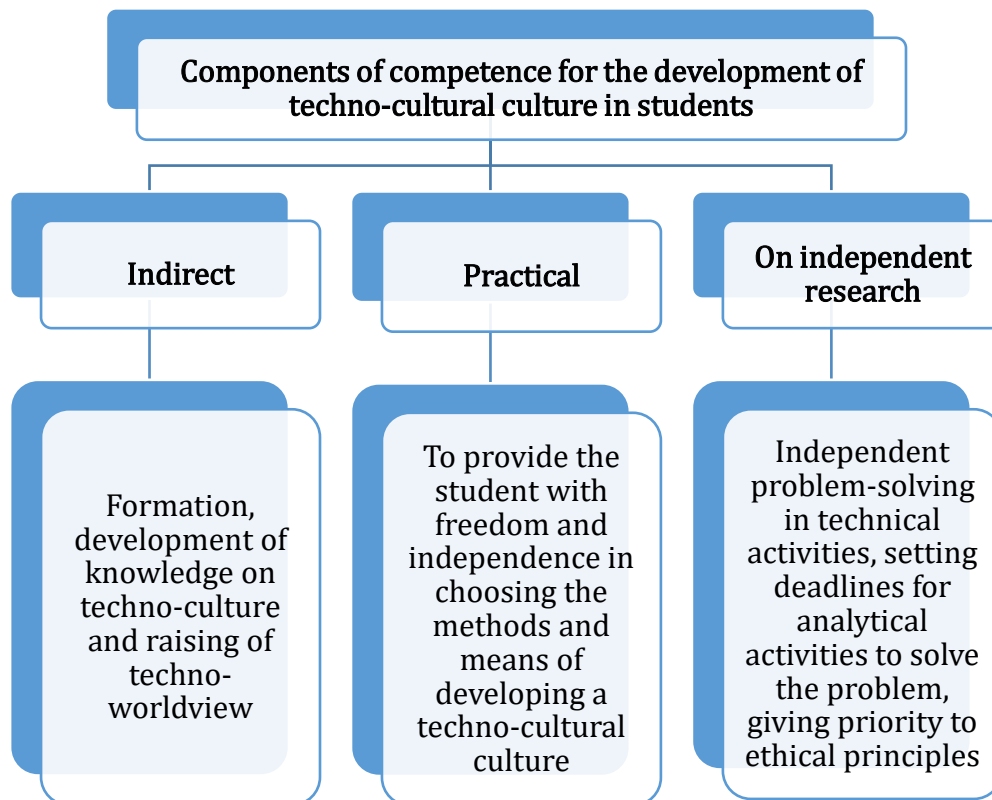


Figure 2. Components of competence for the development of techno-cultural culture in students

The instrumental component requires working with simple technologies for the development of techno-culture: increasing knowledge in the field of technology, the formation of technical creativity, the study of technological innovations, the acquisition of a techno-position.

The practical component gives the student freedom and independence in choosing methods and tools for the development of techno-cultural culture.

The component of independent research requires the use of all available resources in technical activities to independently set the problem, to set deadlines for the implementation of analytical activities to solve the problem, to prioritize ethical principles.

The development of techno-cultural culture among students of higher technical education requires a number of methodological conditions (see Figure 2.1.3).

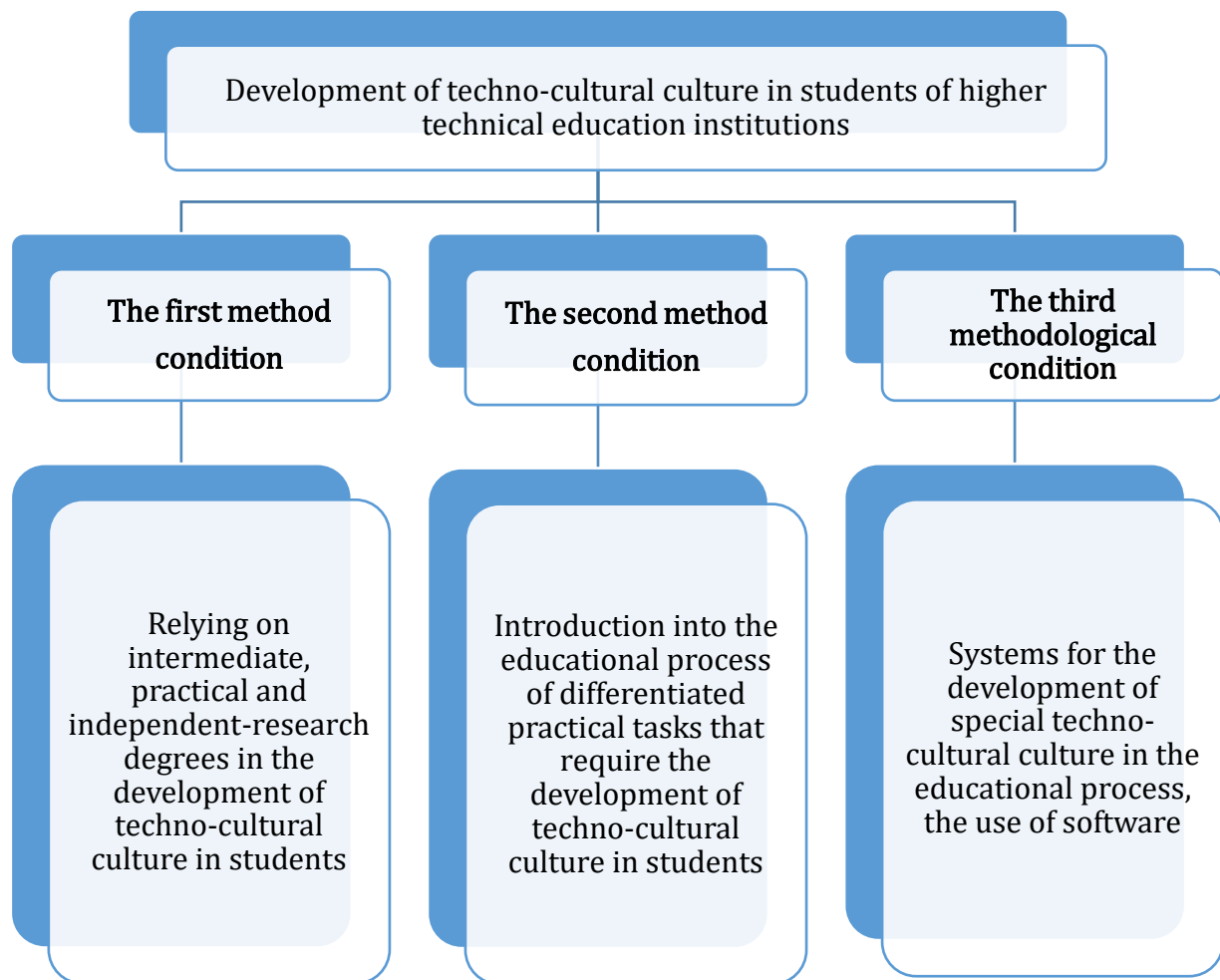


Figure 3. Methodological conditions for the development of techno-cultural culture in students of higher technical education

The first methodological condition is to teach students the technology of development of techno-cultural culture. That is, the development of a techno-cultural culture requires an emphasis on levels of instrumental, practical, and independent research.

The second methodological condition is the introduction into the educational process of differentiated practical tasks that require consideration, analysis (differentiated cognitive method) and generalization (integrated cognitive method) in the development of techno-cultural culture in students.

The third methodological condition is the use of software, systems for the development of special techno-cultural culture in the educational process.

The development of techno-cultural culture, in turn, is related to the ethical position of the student and is determined by its use in preventing the crisis of man-made civilization in terms of the humanistic nature of technology and its focus on personal value characterized by the ability of the creator or user.

Based on this definition, students can distinguish the following components of the development of techno-cultural culture: cognitive (knowledge of techno-culture, analysis of technical ethics, the ability to evaluate), axiological (perception of universal values, defining a model of behavior in relation to these values) ability), communicative-activity (the ability to be tolerant of the opinions of others, the ability to assess the situation). The content of these

components allows us to consider the development of techno-culture as a structure consisting of two parts: personality (system of personality qualities, motives and values) and activity-oriented (experience, knowledge, abilities).

4. CONCLUSION

The analysis of modern research allows students to distinguish three approaches to solving the problem of developing a techno-cultural culture: the influence of the external environment, personal activity and integrative.

The widespread involvement of artificial cognitive structures with intellectual potential in the creation of techniques and technologies does not mean that if we have creative potential, human participation will be limited, interest in the end product or responsibility for results will decrease. Indeed, creativity is a unique and unique ability that reflects the need for renewal in man, the use of his spiritual potential and energy in the pursuit of this goal, the interest in the results of the creative process, the responsibility for the changes caused by this innovation.

Even the most intelligent machines can demonstrate such an ability only one-sidedly, with no possibility at all to fit certain aspects of creativity into artificial cognitive structures. The most important of these aspects is the human qualities of the techno-culture in the creator, such as the need to create the end product, the sense of responsibility for the consequences that result from it.

For the thinking machine, participation in the creative process is not a vital necessity, but because its involvement in the process is programmed as necessary by man. The artificial cognitive structure does not interest the people as a potential consumer of the product of the creative process, nor does it feel responsible for its end results. One of the main reasons for this is that in the most perfect cognitive structures, there is no desire to understand, preserve, and express one's personality in

any way. That is why it is measured by how right it is for humanity to hand over its destiny to machines and automated artificial intelligence, and how they can fulfill their responsibility to do so.

In the process of limited cognition of the creative ability in man-made cognitive structures, intelligent machines can only unilaterally verify the truth about a real event. According to the researcher U.Karimov, there are 4 levels of perception of reality, the first level is the perception of perceptions, the second is the perception of internal changes in reality, the third is the perception of the essence of reality, the fourth is the perception of the subject of knowledge [74; 304]. Artificial cognitive structures have the ability to perceive reality only at levels 1 and 2. A machine capable of reflecting reality only on the basis of a defined program stops at a certain stage of understanding the essence of events and phenomena, the lack of self-awareness in such a cognitive structure prevents the understanding of level 4 reality. Therefore, man retains the status of a single full-fledged subject of the creative process, which can create innovation, realize it, make a creative change in life from the product of creativity. However, the increasing penetration of technology into human life, the growing irresponsibility of technology and other man-made factors, once again raises the task of developing a techno-cultural culture in the fate of mankind.

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