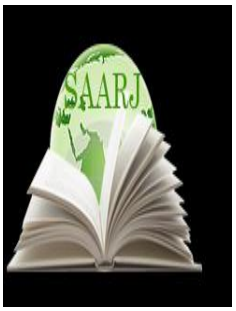

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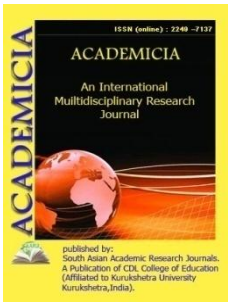

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THE NEED FOR INTEGRATION OF SOCIAL AND TECHNICAL KNOWLEDGE IN THE DEVELOPMENT OF TECHNOLOGICAL CULTURE OF STUDENTS OF HIGHER TECHNICAL EDUCATIONAL INSTITUTIONS

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ABSTRACT

The article analyzes the modern pedagogical conditions, factors, stages, components, methods of developing the techno-cultural culture of students of higher technical education institutions. The article also explores the pedagogical mechanisms of ensuring the integration of social and technical knowledge in the formation of axiological attitudes in the conduct of technical creative activities of students. Systematic reforms have been carried out in our country to form the content of higher technical education on the basis of the integration of science and industry. The Action Strategy for the further development of the Republic of Uzbekistan includes the implementation of priorities such as "development of mechanisms for assessing the quality of education, improving the availability and efficiency of educational services" [1] and "large-scale training and retraining in the required specialties" [2]. The formation of integrated and systematic integrative knowledge, skills and competencies in learners and diagnostic assessment of learning outcomes play an important role in ensuring.

KEYWORDS: *Education, Higher education, Higher technical education, Technology, ethics, Techno-ethics, Technical Creativity, Axiological attitude, Humanitarian knowledge, Technical knowledge, Integration.*

INTRODUCTION

Today, the formation of the techno-cultural culture of future professionals, especially students of higher technical direction, is one of the important pedagogical problems. As a phenomenon,

techno-culture is an intellectual-cultural medium between techno-optimism and technopessimism, which combines the knowledge used in technology, different ethical-cultural approaches to the place of technology in the system of human-society-nature relations and technical behavior of people.

According to international experience, the deepening of the integral connection of production structures with the natural, technical and social sciences has a positive impact on the effectiveness of education. Integration processes such as further expansion of the integrative organizational function of education, modernization of forms and methods of education, formation of important personal and professional qualities also play an important role in further development of the theory and practice of techno-ethics, ensuring the harmony and continuity of innovative professional and technical potential. This requires examining the process of development of techno-cultural culture of students of higher technical education institutions on the basis of integration of pedagogical and technical knowledge by pedagogical diagnostic methods and development of relevant methodological recommendations on identified problems and expanding didactic opportunities of educational integration.

Systematic reforms have been carried out in our country to form the content of higher technical education on the basis of the integration of science and industry. The Action Strategy for the further development of the Republic of Uzbekistan includes the implementation of priorities such as "development of mechanisms for assessing the quality of education, improving the availability and efficiency of educational services" [1] and "large-scale training and retraining in the required specialties" [2]. The formation of integrated and systematic integrative knowledge, skills and competencies in learners and diagnostic assessment of learning outcomes play an important role in ensuring. In this regard, the study of the state of development of techno-cultural culture of students of higher technical education, the study of their professional competence in their field of specialization, the development and implementation of innovative methods of pedagogical diagnosis.

MATERIALS AND METHODS

The analysis of the literature shows that a new direction in the theory of technical education is the study of techno-culture - the culture of technology and human relations. Techno-cultural culture reflects the specificity of these relations and the importance of educational relations, the moral qualities of future professionals in the technical field and the nature of the factors that affect their personal and professional development.

Some scholars argue that techno-cultural culture is an interdisciplinary field of knowledge that embodies a broad reflection on technology, not philosophy [3]. There are basically two arguments to support this view. The first is that techno-cultural culture includes various forms of understanding this phenomenon and, as a result, is far from the classical philosophical-pedagogical traditions in terms of language. The second argument relates to the nature of the decisive tasks of techno-culture. A look at the methodology of solving these tasks shows that techno-cultural culture is mainly focused on solving two tasks. The first task is to understand technology, to form a clear idea of its nature and essence, not by the crisis of technology, but by the crisis of modern "man-made civilization." In the process of solving it, it is understood that the ecological, eschatological, anthropological (spiritual) and cultural crises of our civilization are inextricably linked. The number of so-called "civilizations" is growing. This implies the

impact of technology on all aspects of civilization and man, as well as the deep technical foundations of the development of civilization. [4]

RESEARCH METHODOLOGY

In the course of the research were used scientifically-philosophical principles and methods such as systematic, theoretical deductive conclusions, analysis and synthesis, history and logic, hermeneutic analysis, inheritance, universalism and nationality, comparative analysis.

ANALYSIS AND RESULTS

Many scientists associate the crisis of human culture and civilization with technical and technological progress. For example, M. Heidegger considers that the main problem of our time is that modern technology has turned both nature and man into its "servant" (a functional element of technology) [5]. K. Jaspers also speaks about the same point, noting that man is becoming one of the types of raw materials for processing and can not get rid of the judgment of the technique he created [6]. The saddest thing is that as a result, both nature and man are degraded, destroyed, because the inanimate machine is becoming a simple functional element and material of the factor of production. L. Memford sees the cause of the crisis in something else - when the importance of "megamines" (complex hierarchical structures of human activity) in culture has increased. It is clear from such considerations that there are views on technology as a factor in not only progress but also crisis. Therefore, the decision of the axiological approach to technology and the formation of skills of techno-cultural culture in the future specialists of the technical field has an urgent pedagogical significance.

The University of Massachusetts (USA) is working to create a methodological framework for multidisciplinary educational complexes in the formation of techno-cultural culture among students of technical higher education, to ensure the sequence of integration-divergent processes, to develop systematic models of integrative education and to improve diagnostic methods. Belfield Pedagogical University (Germany), National Advice on Pedagogical Technology (UK), Seoul Cyber University (South Korea), Center for Pedagogical Technology (Russia), Republican Agricultural Research and Production Center (Uzbekistan) and other prestigious research centers and universities scientific research is being conducted in educational institutions.

In recent years, a number of important scientific results have been obtained on the research problem. Methods for the implementation and diagnosis of an integrated system of knowledge aimed at shaping the techno-cultural culture of students of higher technical education (Massachusetts University); on the basis of modern didactic means of teaching the system of an assessment of development of professional opportunities of future experts on the basis of integrated technology (Institute named after Frica Bauer) is created; the organization of the process of vocational education on the basis of interdisciplinary integration, the development of professional intellectual and psycho-emotional development of future specialists in the field of technology and the technology of its assessment (National Advice on pedagogical technology); the theoretical foundations of interdisciplinary interaction of subjects in the humanities and technical cycle and their application to practical activities are diagnosed (Seoul Cyber University); developed an algorithm for designing the activities of teachers and students in the context of the principles of integrative design and quantitative-qualitative approach (Tsentr pedagogicheskix technological); The mechanism of integration processes based on the use of

modern resource-saving technologies in the education system of the republic has been developed and the directions of complex diagnostics of real demand and needs for future specialists in the labor market have been introduced (Fergana Polytechnic Institute).

Today, scientists are talking about integrative-pedagogical concepts, that is, the unity of systematized views, rules and ideas that determine the content and direction of integrative-pedagogical activity in this or that field.

The results of the analysis show that there are different views on the conditions of integration of educational content. But, in our view, from a general point of view, they do not contradict each other, but rather complement each other in content. Admittedly, the views of scholars in some areas are close. For example, the terms “research objects must be compatible or close enough in content”, “research methods that use the same or similar content in the integration of academic disciplines” are more appropriate in terms of meaning: “integration components to specific connection points , Must have a degree of "brotherhood." Despite the differences in the expressions, we see a commonly calculated sign for the conditions listed above. This is the semantic closeness of the integrating components.

Based on the analysis, the following conditions of integration of methodological significance for the study were identified:

- The presence of different elements that are close to each other in terms of content (proximity of research objects, the same research methods or their proximity to each other, general theoretical concepts, laws);

- The need to integrate them into a whole, based on the purpose of education (the basics of integration);

- Maintaining the independence of the components at the minimum level necessary for the formation of integrity.

Ensuring interdisciplinary integration is now an objective need, as improving the professional training of future vocational education teachers requires a combination of training in general (pedagogical) and field (technical) disciplines. The interdisciplinary integration proposed in the study served to reveal the potential of academic disciplines in the study of cognitive and technological problems. The study clarified the differences between concepts that are close in content, such as integration, interdisciplinary, interdependence, membership. In fact, they are concepts that complement each other with content, character, connection, and relationship, reflecting the holistic picture of the unification process that takes place in education. These concepts were interpreted as integration, interdisciplinary, interdependent. The relationship between integration and interdisciplinary interdependence is much more complex.

A unique system is created on the basis of interdisciplinary, interconnected, integrated. Interdisciplinary connections allow the content to be established at the level of closely related concepts, topics, sections of academic science, and for students to consciously deepen their knowledge, but this does not ensure their systematic connections. Testing the possibilities of interdisciplinary connections in practice did not lead to significant changes in the level of knowledge acquisition, the nature of learning motives, or the level of personal development. According to researchers, it is desirable to prioritize the concept of interaction between general

and vocational education, which is ensured not only by means of interdisciplinary communication, but also through the application of specific principles: polytechnic, membership, professional orientation, problem-solving and others. However, despite some achievements, it does not allow students to significantly increase their level of knowledge, skills and abilities. In our opinion, a qualitatively new level of vocational education can be achieved in the context of an integrated educational process based on integration and differentiation of knowledge, semantic generalization, the principle of "enlarged units" and the "technological principle". The integration (synthesis) of general and special knowledge is an important condition for improving vocational education.

In the process of higher technical education, it is important to form the techno-cultural culture of future specialists on the basis of the integration of socio-humanitarian and technical knowledge. At the same time, it is necessary to integrate technical knowledge with philosophical and moral knowledge about the current place of technology in the human-society-nature system in the formation of students' techno-cultural culture. At the same time it is necessary to teach students the subject "Technical Philosophy and Techno-Cultural Culture".

Given the characteristics and nature of techno-cultural culture, the content of teaching this subject is systematized as follows. All its components are divided into three sections: basic, additional and basic sections.

The following courses are taught in the main department:

- History and essence of technology;

- Technical concepts and essence;

- The genesis of technology in culture;

- Concepts and essence of technology;

- Technical environment and technical presence;

- Ethical and axiological problems of techno-cultural culture.

Additional section courses:

- Technical history;

- Properties and formation of science;

- Features and formation of engineering activities;

- Traditional and non-traditional design;

- The structure and formation of technical sciences;

- Technique and beauty (design research).

The Basics section includes the following courses:

- Ethics and techno-cultural culture;

- Theory of activity and techno-cultural culture;

- Axiology and techno-cultural culture.

We will discuss these sections in more detail. First, it is important not to be content with stating certain points in the main section, for example, only the author's point of view or any other authoritative point of view. At the same time, the content of education is determined by the communication of different perspectives, research programs. But this means that the basic unit of educational material is the intellectual situation. The intellectual situation can be different, for example: overcoming certain difficulties and problems, promoting a certain research program and trying to implement it, criticizing the approaches defended by representatives of other directions, and so on.

The second feature of the approach is the separation of 'reflexive' content. In turn, this implies a special methodological reconstruction of the content on the basis of activity theory, thinking theory, cultural studies and some other special disciplines.

It is self-evident that the forms of narration in the main section should be problematic and dialogical, in which reflexive factors should be widely used.

Through this science, for example, the great philosopher Heidegger must understand the problem that man himself has already become a "factor" of technology, and that nature must also become a "factor," and form a critical attitude to it. While researcher J. Martin acknowledges that it is easier to destroy the planet itself today than to end the damage it has done to the planet, at the same time, "technology has created this problem, but its only solution is not to hinder the development of technology. is a two-way development. To abandon technology or to stop its development is to condemn the world to unprecedented needs ... It is necessary to choose and develop technologies that are compatible with nature. " [8] In short, some philosophers believe that technology should be humanized, harmonized with nature and man. At the same time, some philosophers [9] try to justify the idea that any attempt to humanize modern man-made civilization is in vain, because the system is able to demonstrate extreme resistance to such "cosmetic operations". It is noteworthy that both parties to the dispute provide more convincing evidence to support their views. Communicating such ideas to students in the classroom and interpreting their content will greatly contribute to the development of techno-cultural culture in them.

The methodological problem in the development of techno-cultural culture of students of higher technical education institutions is to achieve in their worldview - the process of reduction of technology to non-technical: activities, forms of technical rationality, values, certain aspects of culture. To achieve this, it will be necessary to acquaint students with the definitions given to the technical concept in the social sciences. For example, in the course of the lecture, the teacher of social sciences and humanities should give the answers of technical specialists to the question of what is technology and influence the development of their techno-cultural culture by rationally shaping their attitude to this definition. For example, the following definitions of technology can be used: technology is a means to an end, a specific human activity. Some definitions emphasize ideas and the role of their realization, the importance of certain values. For example, while analyzing the definitions of concepts proposed in techno-cultural culture, F.Rapp argues that for H.Beck, technology is the transformation of nature through the human spirit [10]. In his view, everything that gives material meaning to human desire is in fact technique. The idea of creative transformation of nature is one of the central ideas of F. Dessauer's work. After enumerating the numerous definitions given to the concept of technique, he gives it his own definition: technique

is the real existence of ideas, which arises as a result of the processing of natural materials and objects. F. According to von Gottl-Ottlilienfeld, technique is the art of finding the right path to a goal in the subjective sense, and in the objective sense - a set of means and methods of action in the context of a particular area of human activity. L. Tondl considers everything that a person uses to change certain properties of the objective world to achieve his goal as a technique [11].

It should be noted that in all such definitions of the concept of technology (reflecting certain approaches of researchers) its materialization occurs, that is, technology seems to disappear and is replaced by certain forms of activity, values, human spirit, various aspects of culture. Sometimes the technique is presented to the researcher not as a substance, but as a deep and universal aspect of any human activity and culture. This begs the natural question: is technology an independent entity, that is, a technique, or is it an aspect of human activity and culture?

Cultural studies, for example, show that in archaic culture the tools of labor, simple mechanisms and devices are understood in terms of the animistic landscape of the world. The ancient tools of human labor (weapons) contain spirits that help or hinder man, so the act of making or using weapons implies influencing these spirits (sacrificing or turning to oneself through prayer), otherwise the action is useless. or those who thought that the weapon would come out of the judgment of man and be directed against him. Such an animistic understanding of technology has also defined the essence and nature of ancient technology. In this sense, in the ancient world, technology was compatible with magic, and technology was completely sacred.

The formation of technology in the culture of the new era leads to the fact that modern man begins to see in technology the application of the laws of nature and his own engineering creativity. It is not a question of a particular interpretation of the technique, but of its cultural existence and existence. Technology (tool, mechanism, machine) lives as a spirit according to one "logic", according to another "logic" as a product of divine creation (medieval interpretation of technology), and according to another "logic" as a process of nature (power). In culture, technology lives and develops not according to the “laws of need and necessity,” but according to the logic of the existence of ideas, cultural forms of consciousness, perceptions of the world (worldviews). But the perception of technology was different in every culture. Doesn't this mean that technology develops in sync with the process of evolution, even when cultures change? For example, the separation of technology in modern culture coincided with the formation of a separate cultural idea and scenario: in the natural sciences to describe the laws of nature, to create conditions that allow the separation and consistent use of natural forces and energy (defined as an engineering task); creating an industry capable of meeting human needs based on engineering developments. This raises the question of whether this idea and scenario should be included in the description of "modern nature" or whether they are directly related to technology [11].

Many scholars of the problem of techno-cultural culture, primarily historians and sociologists, advocate a view that can be called a socio-deterministic or contextual approach. According to this approach, techno-cultural culture is not a neutral means of solving problems, but an expression of social, political and cultural values. Techno-cultural culture combines not only technical ideas, but also the broad social values and interests of its designer and users [12].

CONCLUSION

Based on the above, the following was concluded:

1. Preparation for future technical and professional activities requires a systematic approach to improving the techno-cultural culture of students on the basis of integration of pedagogical-psychological theoretical and practical knowledge, interdisciplinary integration, integration of pedagogical and technical knowledge.

2. The growing demand for technical specialists in society is due to the need for integrative (complex) application of social and technical knowledge in higher education, the need to equip future professionals with integrative knowledge and insufficient pedagogical conditions and methods for the widespread introduction of integration trends in pedagogical practice. shows.

3. An algorithm for the introduction of integrative education and the method of diagnosing its results, which serves to increase the effectiveness of professional and pedagogical training, is an important factor in the formation of the techno-cultural culture of students of higher technical education.

4. In the formation of the techno-cultural culture of students of higher technical education it is necessary to include the subject "Technical philosophy and techno-culture" in the block of social sciences and humanities.

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