

The Concept Of Technological Determinism In Students A Systematic-Functional Model Of The Development Of Knowledge About The Fundamentals

Jamshid Obidov

Independent Researcher Fergana Polytechnic Institute, Uzbekistan.

Abstract: the process of developing knowledge about the basics of the concept of technological determinism in students of technical higher education institutions as an object of modeling in this research, and the content and methodical system of developing their knowledge about the basics of the concept of technological determinism was the subject. At the same time, various pedagogical methods and tools were used in this research work. Development of a pragmatic, systemic-functional model was defined as the goal of this research aimed at developing knowledge of the basics of the concept of technological determinism among students of technical higher education institutions. This type of model helps to search for means of managing the process of developing knowledge about the basics of the concept of technological determinism in students of technical higher education institutions, as well as to reflect the researched processes that allow to achieve the difference between the initial and final state of the level of training.

Keywords: technological determinism, techno-optimism, techno-pessimism, methodological support, regulatory-legal support, social order, reflexive approach

INTRODUCTION

Today, the formation of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions is one of the important pedagogical problems. Because the concept of technological determinism is an intellectual-cultural tool between techno-optimism and techno-pessimism, it embodies different rational approaches to the knowledge used in technology, the place of technology in the system of human-society-nature relations. Therefore, the development of a new methodology for teaching the basics of technological determinism and educational technology based on it is one of the urgent tasks.

It should be noted that the social importance of higher education is only pragmatic, i.e. teaching future specialists the knowledge typical of past times, not limited to the development of their professional skills, but also the formation of personal characteristics

such as high intelligence, worldview, sense of responsibility, activity, creative activity typical of modern specialists. As a result, this process serves rapidly developing social and economic relations.

MATERIALS AND METHODS

In the process of higher education, the main goal is to educate a person who can think freely, who can act on the basis of humanism and justice, and who has versatile skills. Specialists with the above characteristics have the ability to solve social and professional tasks encountered in everyday life. The innovative approach to higher education is fundamentally different from the method of acquiring knowledge based on the plan, which has been the priority in the training of specialists until now. A modern approach to the formation of the professional skills of specialists, i.e., its content, technologies, and methods, is a factor of improving the renewed higher education and a method of educating

bachelors and masters suitable for the new era. In this process, it is necessary for higher education to fulfill its task of forming humanistic, spiritual and moral qualities in future specialists. It should be noted that this process is closely related to factors such as accelerating socio-economic development and changes in human working conditions.

Also, in today's modern education, a special emphasis is placed on creating a comprehensive system of teaching and thereby improving students' professional skills and forming the most necessary competencies. At the beginning of the last century, the modern civilization named "technogenic civilization" was formed and developed. Various types of engineering activities, design, mass industrial production, and modern forms of technology are born in its bosom. All this provides an opportunity to implement the social project of meeting the growing material needs of man and society. As a result, not only unprecedented opportunities and conveniences for meeting human needs are created, but also universal crises occur. Today, the engineering method of creating equipment has lost its former importance. Technological determinism has become the main way to understand, improve, and use technology. It is important to create a model of pedagogical education, technology and pedagogical conditions for its implementation in teaching such problems to students of higher technical educational institutions. The most effective tool in this process is modeling. On the basis of modeling, an educational model for the development of knowledge of the concept of technological determinism among students of higher technical educational institutions is created. An educational model is a mental image that allows to obtain new information about a certain object, scientifically reflects the subject of research, or a system that is inclined to its material appearance[115]. Therefore, many scientists try to show the two-sided nature of technical progress. On the one hand, the development of techniques and technology gives a person the opportunity to solve a large number of problems and tasks, ensures the well-being of the population, and serves as the basis of the

current man-made civilization. On the other hand, technical progress leads to an increase in unintended negative consequences that are neither predictable nor controllable. Technical progress has no targets, no one knows where it is going. Because of this, its consequences cannot be foreseen. The stronger the technical progress, the greater the sum of its unintended consequences. As technology advances, so do the number of conflicts, obstacles, and crises it creates. In particular, environmental pollution, depletion of non-renewable resources, globalization of potential risks are among them. Consequently, it is necessary to constantly recalculate the financial resources allocated to research to compensate for the damage caused or to find a substitute for the dwindling resources. Only after such a calculation, it is possible to form an idea about the real value of the product of technical development, the real prices of technical means. For example, technology that causes severe poisoning requires the construction of treatment facilities and the establishment of health restoration centers. Therefore, it is necessary to include the value of these in the general estimate of costs. Such changes give rise to new approaches to the world of technology, to the perspective of man-made civilization, to the concept of technological determinism, to understand, explain, and thereby respond. In the case of higher technical education, by treating technical and technological developments on the basis of a cause and effect chain, it is possible to predict its prospects, define its prospects and determine the parameters of training.

RESULTS AND DISCUSSION

In the modeling of the pedagogical system aimed at developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions, the following functions were considered:

- methodological support function. The implementation of this function is related to regulatory legal documents and a social order that defines the theoretical basis for the development of knowledge about the basics of

the concept of technological determinism among students of technical higher education institutions;

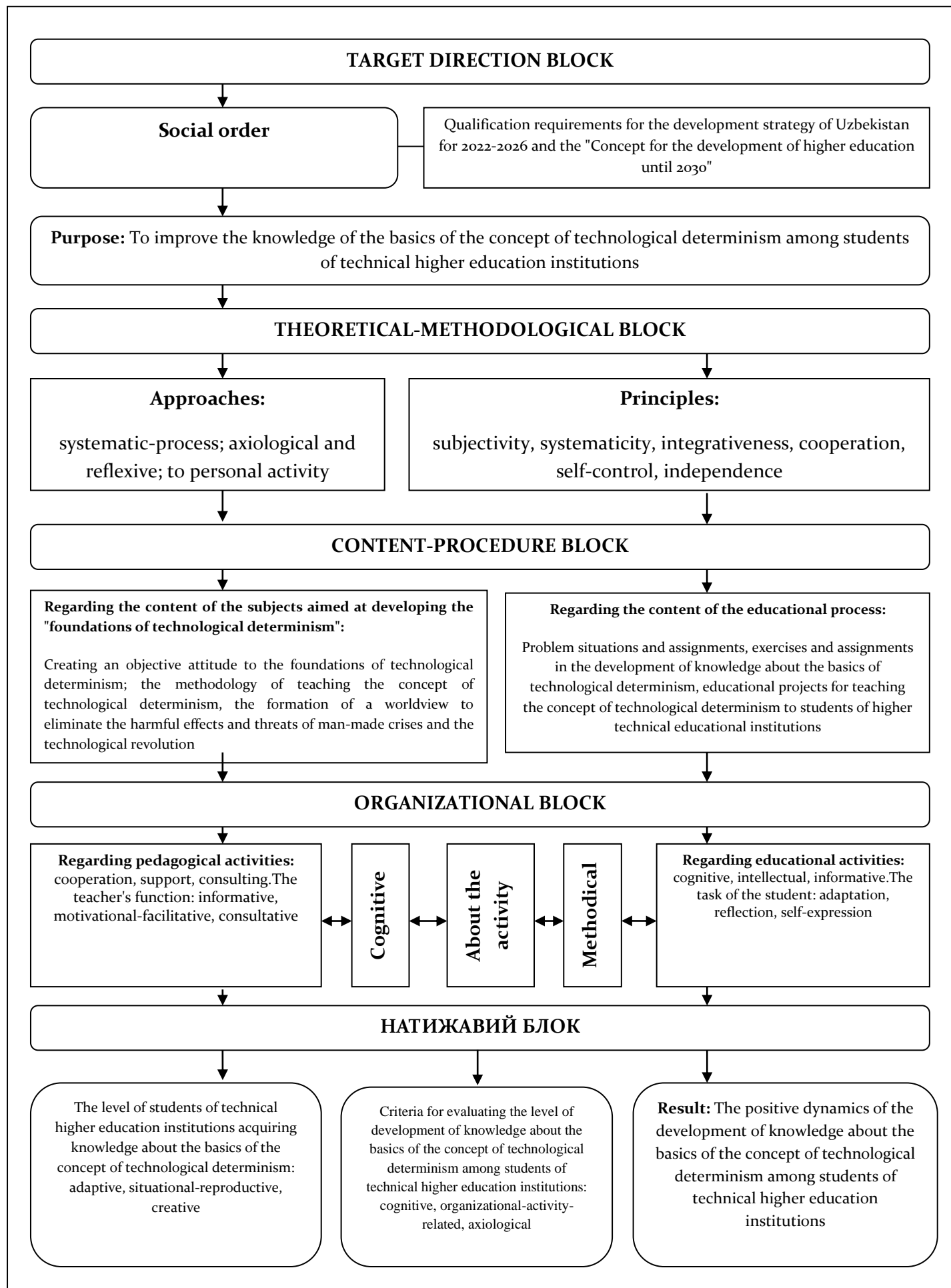
- function of regulatory and legal support. This function requires determining the principles, content, tasks, pedagogical conditions, diagnostic tools for involving students in technical higher education institutions in the development of knowledge about the basics of the concept of technological determinism;

- methodological support function. It requires clarifying the methodological (content, form, methods and tools) conditions for the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions;

- practical-applied (empirical) function. This function allows solving a number of tasks: formation of value-oriented and stable

motivations in connection with the knowledge, skills, qualifications and competencies of students of technical higher education institutions about the basics of the concept of technological determinism, analysis of the researched process and making certain corrections; evaluation and analysis of results, etc.

The systematic-functional model of the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions reflected goal-oriented, theoretical-methodological, content-related, organizational and result-oriented components. These components contribute to the development of students' knowledge and skills on the basics of technological determinism. At the same time, it had a positive effect on the quality and efficiency of education.



The goal-oriented block plays a leading role for other blocks of the system of developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions. Based on clarification of the content of this block, the educational standard and social order, regulatory and legal frameworks in the field of research were defined. The goals and objectives of the model were also clarified. This increases the effectiveness of conducting research based on modeling.

The development strategy of the Republic of Uzbekistan for 2022-2026, the new Law "On Education", the strategy for the development of higher education until 2030 and other normative legal documents as a social order in the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions.

The analysis of educational standards and regulatory legal documents on technical education showed the need to optimize educational and preventive work aimed at developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions. Conducting such educational and preventive activities on the basis of systematic and clear strategic plans affects the effectiveness of educational activities.

The goal-oriented block of the educational model is determined by the achievement of certain results. Goal clarification is done by focusing on a series of questions that the system under development should answer. In order to successfully solve the problem of developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions, the final result of this process should be clearly reflected. The purpose of the model was defined as the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions by means of integration of social humanities and technical sciences. In the process of developing a model

aimed at developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions, it was envisaged to solve the following tasks: 1) clarification of methodological approaches to the development of a model for the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions;

2) clarification of the block structure of the pedagogical model aimed at developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions;

3) to reveal the relationship between blocks and elements of the pedagogical model aimed at developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions;

4) to describe the block structure and elements of the pedagogical model aimed at developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions.

The above-mentioned goals and objectives of developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions are related to complex methodological approaches. The object of study of the methodological approach is interpreted as a strict methodological direction of the research from the point of view of the principle of implementation of guidance to the general strategy of the research.

Effective approaches to the development of knowledge about the basics of the concept of technological determinism in students of technical higher education institutions can include the following:

- the systematic-process approach is characterized by setting a problem that reflects the logic of scientific research as the general basis of research, clarifying the main and local goals, clarifying conflicting opinions and points of view, and developing a model of knowledge

development in students of technical higher education institutions about the basics of the concept of technological determinism provides;

- axiological and reflexive approaches as the theoretical-methodological basis of the strategy define the directions of theoretical research, reflect its general view. These approaches make it possible to determine the value system and develop knowledge about the basics of the concept of technological determinism among students of technical higher education institutions;

- the personal-activity-oriented approach is manifested as a practical-oriented tactic aimed at identifying the mechanism and procedures for organizing the activities of professors and teachers and students, revealing the peculiarities of the practical use of the studied phenomenon in order to achieve the set goal.

In our opinion, it is necessary to analyze the approaches in harmony. Only the complex application of approaches allows for an objective study of the problem of developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions.

Below we explain the essence of these methodological approaches.

Systematic approach is a direction of scientific knowledge and methodology of social practice, which is based on the acceptance of objects as a system. The systematic approach directs the researcher to reveal the integrity of the object, to identify different types of its connections and to bring them into a unified theoretical view. Therefore, it follows from the systemic approach that the uniqueness of a complex object (system) does not negate the individual characteristics of its components, but on the contrary, it creates connections and relationships between certain components.

The rules of the systematic-process approach are reflected in the proposed model as follows:

The possibility of expressing the research object as a whole, stable and internal self-organizing structure of components, functional communication and relationships. It is appropriate to consider the development of

knowledge about the basics of the concept of technological determinism among students of technical higher education institutions as a systematic-process, as a joint action and interrelationship of theoretical-methodological, meaningful-process, organizational, result blocks, their components and their functional interrelationship.

1. Through the versatility of this approach, management is manifested as a set of interrelated and universal management processes (planning, organization, motivation, control and related processes)[51]. In our research, this process is reflected in methodological support (support, friendly attitude, counseling and development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions).

2. Orientation to the needs and satisfaction of all education consumers as a result of the training of specialists in higher education and achieving continuous improvement. The most important aspect of the system-process approach is reflected in the fact that the "output" results of each process are objectively dependent on the "input" (need) situation. In this way, through the integrity and continuity of all components of this process and model, interdisciplinarity is achieved in the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions.

Each methodological approach is associated with a certain system of principles that allows the realization of the set goal. The principle means requirements, basic rules for the process of development of pedagogical models, systems, etc. The principles reflect the objective requirements for the formation of the researched direction.

The main principle of the systematic approach considered in the framework of the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions is the principle of integrity, which requires the analysis of this system both as a

whole and as a sum of parts (blocks). This principle is directed to the analysis, to "look at the internal structure" of the system, while preserving the holistic ideas about the system. The model of knowledge development in students of technical higher education institutions about the basics of the concept of technological determinism can be considered as a system consisting of a set of interconnected blocks and elements. This principle allows not only to see the learner's reaction to a particular behavior, but also to teach him to perceive a separate reality as a part of the whole world.

In the process of research, the systematic-process approach was widely used in the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions. This made it possible to visualize the studied pedagogical phenomenon in its entirety in terms of the structures, components, functional relationships and their management occurring in each block of the model. It is on the basis of the synthesis of a systematic and process-related approach that an objective and complete picture of the studied problem can be formed. It is characterized by gradualness, controllability and results.

It is also important to use reflexive and axiological approaches in developing a model of knowledge development in students of technical higher education institutions about the basics of the concept of technological determinism. The main specific features of applying a reflexive approach to the process of developing knowledge about the basics of the concept of technological determinism among students of technical higher education institutions are reflected in the following:

- deterministic approach to the process of invention of technology and technology in students of higher technical educational institutions and formation of technological responsibility;
- on the basis of technological determinism, creating an attitude and a personal position against the dependence of the technological revolution on humanity and the control of artificial intelligence on humanity;

- to understand the need to study the concept of technological determinism, that is, to compare the current personal experience with the man-made crisis and the professional position of the engineer;

- setting a clear goal for oneself based on technological determinism, that is, putting one's actions into a mental system and imagining its consequences;

- based on the concept of technological determinism, self-control, self-reporting on the situation in the selection situation that occurs in the process of solving professional tasks.

Reflection reflects understanding, comparison, comparison, goal setting, planning, forecasting, self-control, self-evaluation, self-correction and allows the following processes to manifest in the student's future professional activity:

- to understand and master the importance of the deterministic concept and its place in the future professional activity by creating a logical connection between the elements of educational materials through the concept of technological determinism;

- compliance with the technical regulations on the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions;

- understanding and acceptance of tasks related to the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions;

- analyzing and summarizing the results obtained on the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions, comparing and contrasting the requirements and conditions of interaction and solving situational tasks and problems.

Applying a reflexive approach to the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions allows to establish active cooperation of students and professors, to realize

individual opportunities of students in the process of professional formation.

The main principles of the reflexive approach include:

- the principle of self-awareness based on the technological deterministic concept. It is through self-awareness that enables independent personal and professional socialization of students, awareness of the compatibility of their needs, opportunities and abilities with the demands of society, preparation for independent, creative and creative activities, internalization of personal and professional value system;

- the principle of self-expression based on the technological deterministic concept. Within the framework of deterministic norms, to justify the point of view of reciprocity in relation to the development of technology and its practical importance, to take the initiative in observing ethics in the field of safety of life activities in technocratic conditions develops the ability of self-expression. By creating a desire for self-development in students, there is an opportunity for self-expression;

- the principle of self-control based on the technological deterministic concept. This principle is an in-depth analysis, justification and generalization of students' own behavior; existence of the known and the unknown in connection with a certain situation, the importance of acquiring information, the necessity of developing specialist knowledge based on the technological deterministic concept; increases cognitive activity of students, encourages active and independent thinking.

Currently, the interest in the axiological approach is related to changes in the socio-cultural environment, the emergence of an activity environment based on the concept of new technological determinism. The search for new values in connection with changes in society is especially important in the presence of social instability.

In connection with the subject of research, the axiological approach is important in terms of forming a value system for the development of knowledge about the basics of the concept of technological determinism among

students of technical higher education institutions.

The research status of the axiological approach makes it possible to perform various tasks in the system-functional model of the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions.

The implementation of these functions allows not only the formation of a system of social and personal values, but also the search for ways to resolve them in the personality of each student. Also, the main goal of the axiological approach: in the development of knowledge about the basics of the concept of technological determinism in the students of technical higher education institutions, it creates the necessary conditions for the effective organization of the process of formation of universal, civil, cultural and patriotic values.

As the main principles of the axiological approach, the following were defined:

- the principle of integrating social and personal factors that require the formation of a value system in students based on the concept of technological determinism. This principle requires the harmonization of social and personal values in the development of knowledge about the basics of the concept of technological determinism in students of technical higher education institutions, ensuring integrity between them;

- the principle of social activity. This principle is important and necessary for the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions, and the connection with the objective changes taking place in society, including the world of technology, requires the formation of high morality in them.

CONCLUSION

Based on the above-mentioned points, it can be concluded that the reflexive and axiological approach determines the complete description of the studied process in terms of content, provides effective planning, organization and diagnosis of

the development of knowledge about the basics of the concept of technological determinism among students of technical higher education institutions.

In the person-activity-oriented approach, the person and the activity components are closely related to each other, because in this approach, the person acts as a subject. In turn, under the influence of various factors and under the influence of the results of the individual's activity, his development as a subject takes place.

The following pedagogical conditions were taken into account in the implementation of the personal-activity-oriented approach: the voluntary nature of the higher technical education student's involvement in a certain activity; trusting the student in choosing the means of achieving the set goal, believing in the capabilities of each student and wishing for their successful completion of the assigned tasks; choosing an effective and reasonable strategy in setting educational tasks; prevention of negative consequences arising in the process of pedagogical influence; to take into account the interests of students, their individual passions, desires and make them develop new interests.

REFERENCES

1. Law of the Republic of Uzbekistan on Education. -Tashkent.: Uzbekistan, September 23, 2020. (National database of legal documents, 24.09.2020, No. 03/20/637/1313).
2. Mirziyoev Sh.M. We will resolutely continue our path of national development and raise it to a new level. Roof 1. - Tashkent: Uzbekistan, 2017. -B.592.
3. Avlakulov A.M. Man-made civilization and educational processes. -Tashkent.: 2016. -B. 12.
4. Azizkhodjaeva N.N. Osnovnye tendentsii razvitiya vysshego pedagogicheskogo obrazovaniya v Uzbekistane. - Tashkent: Science, 1990. - 143 p.
5. Asmolov A.G. Psychology Lichnosti. - Moscow.: Izd-vo Mosk. university, 1990. - S.367.
6. Ziyomuhamedov B., Abdullaeva Sh. Advanced pedagogical technology: theory and practice / Method developed on the basis of the lesson "Fundamentals of Spirituality". hand - Tashkent: Ibn Sina, 2001. - P.80.
7. Memford L. Technika i priroda cheloveka // Novaya technokraticheskaya volna na Zapade. - Moscow.: 1986. - P.156.
8. Nishonova S. Perfect human education in the development of pedagogical thought of the Eastern Renaissance. Ped. science. Ph.D... diss. - Tashkent, 1998. - B.288.
9. Safarova R.G. Theory and practice of mother tongue education in the schools of Uzbekistan in the conditions of national revival: Doctor of Science. Diss. - Tashkent, 1998. - P.254.
10. Philosophy: an encyclopedic dictionary / Compiler and responsible editor: Q. Nazarov. - Tashkent: Sharq, 2004. -B.496.