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## THEORY AND PRACTICE OF ECOLOGICAL COMPETENCE IN STUDENTS

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## THEORY AND PRACTICE OF ECOLOGICAL COMPETENCE IN STUDENTS

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**Abstract:** the article considers the necessity of generalization, analysis and systematization of accumulated knowledge in the field of pedagogy and analysis of pedagogical problems, human-environmental interaction in the XXI century. It was noted that the ecological state of the modern world is associated with educated, competent, high spiritual values and people living in harmony with the environment. In this regard, environmentally competent professionals play an important role in shaping a stable future. The article defines actual ecological knowledge and ecological education in the whole world and Uzbekistan.

**Key words:** ecological competence, the environment, education for sustainable development, pedagogical problem, methods of teaching ecology, reflective technology, vitagen technology, ecotraining.

### INTRODUCTION

Overcoming the problem of social, economic, demographic, spiritual and environmental tensions arising in the world within the framework of human activity as a problem of modern civilization. The dynamically developing world labor market and high-tech development sets itself the task to increase students' environmental competence, environmental culture to a high level, to transfer competent, armed with modern environmental knowledge to specialists in the field of social development. "The experience of many countries of the world shows that the education system is the best performer in the process of solving national problems.... Through education, environmental risks that pose a risk to children, adults and the whole world can be reduced." [29].

Today, when the process of modern globalization is rapidly gaining in the world, the issue of living in an environmentally safe space for human health is becoming increasingly urgent. "The formation of a national strategy aimed at

protecting the state, society and the individual from global, regional and national environmental risks arising from the processes of globalization that occur in the world today, and the improvement of environmental protection and human health to find solutions to these risks are relevant “[44].

A new way of education is a competent and qualified professionals, systematically and creatively minded, holistically perceiving and analyzing social and environmental layers. This proves the necessity of scientific study of the structure of ecological competence of students, determination of its pedagogical tools, methods and forms, creation of pedagogical model of ecological training and improvement of didactic bases of increase of level of ecological competence of students.

The implementation of the objectives defined in the strategy of action in the five priority areas of development of the Republic of Uzbekistan in 2017-2021, the development of environmental awareness and culture of the younger generation through the education system in conjunction with environmental problems in the Republic will be the basis for the environmental literacy development in students. In order to effectively organize the environmental education process and upbringing, the environmental education concept development of the Republic of Uzbekistan [29] and adopted at the summit of the United Nations General Assembly on sustainable development in September 2015 70 – resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated October 20, 2018 No. 841, adopted in accordance with the resolution of the Council of Ministers of the Republic of Uzbekistan, as well as in order to organize systematic work on the consistent implementation of the sustainable development Goals of the UN global agenda until 2030, will serve as the basis for the development of environmental competence of students [29].

There are several challenges in students ' environmental competence development:

scientific and theoretical justification of the fact that the development of environmental competence of students of higher educational institutions is a pedagogical problem;

analysis of the experience of the history of education in the development of environmental competence of students;

study of factors affecting students' environmental competence;

improvement of the model of the system of development of ecological competence of students, definition of pedagogical conditions of application in practice,

development and development of scientific and methodological manuals based on a combination of content, textbooks, methods and forms of development of environmental competence of students, determining the level of their effectiveness by conducting a pedagogical experiment.

The concept of environmental literacy and culture was formed in the Eastern world more than 3,000 years ago. The invaluable work "Avesto" is the very first document in the field of nature protection and conservation. Theoretical foundations of ecology and environmental protection in the Republic of Uzbekistan. A. Tukhtayev [35], H. Tursunov [38], D. Yormatova [7]; in the system of preschool education: M.R.Khalilova [12]; methodological bases of increase of environmental literacy of students and their application in higher education: N.Bazarova [24], A. Malikova [2]; the issues of ecological education and culture, the problems of interdisciplinary integration: A. R. Meliboev [1], H. B. Norbutaev [41] M. Nishanbaeva [19], M. Alikulova. [18] P. Berdanova. [30], Sattorov.V [40], B. Rahimkulova [17].

Of foreign scientists Laleshwar Nand [16], Nina Roczen[26], Bartosh Oksana [4], Marcus Arnie [20] revealed the effectiveness of the pedagogical and didactic nature of environmental knowledge, Thomas E. Lovejoy [34], Eugene Pleasants' Odum [10], Scientific research and research by environmental scientists such as Stuart Chaplin III [11] contributed to the theoretical and practical development of the world ecology.

### ***MATERIAL AND METHODS:***

Environmental education is a set of knowledge, skills and abilities of a person in the understanding of natural values, cultural and biophysical relations between man and nature and the environment. Environmental education is, in turn, practical skills and experience in solving problems related to the environment. Ecological education is a feature of ecological literacy of the person in relations with nature, self-improvement of the person in the system “Man-nature-society”. In the process of studying the system of ecological education and upbringing compares the system of environmental education in several developed countries, study of the innovative educational environment in them, the modern system of learning and the factors causing an increased environmental culture, and creates efficient ways to use them in our own experience, promoting the development of students' ecological competence.

Environmental knowledge and environmental worldviews in the U.S. education system began to flow into the Commonwealth of Independent States education system shortly thereafter. Knowledge of the U.S. natural environment aims to develop active citizenship through environmental awareness and responsibility.

The Western system of environmental education (Germany) is not strictly formulated, a city located in the territory of each state distributes the subjects of science and time, based on their location, while schools independently (using different methods, forms and methods of education) attract great opportunities. The school serves as a life experience area for parents, educators and school staff [13].

The importance of environmental education in Japan increases after the 60s and 70s. In the development of environmental knowledge, education began to pay great attention to education, and the government of Japan began to establish “environmental schools”. Such schools in all its name exclusively for the use in environmentally friendly, harmless to the environment, such as: generator solar and wind, rain and natural underground water, and students who are studying in

these schools, consciously know that they do not harm nature and that the use of modern (environmentally) clean methods is effective. Realizing that the highly developed Japanese state is reduced by the natural environment, people consciously communicate with nature: plants, although few there, create an artificial aquatic environment and, most importantly, try to preserve the benefits of wildlife in the territory of the developed state [6].

The state of South Korea in 2012 promotes the idea of sustainable development with the participation of members of the UN Council called "Rio+20", "Stockholm+40". We can see that the basis of Korea's environmental condition is legislative control, promotion and implementation of new environmentally friendly innovative technologies, full compliance with the progress of sustainable development and career creation for future leadership positions, ending with colleges of special environmental training to prepare Mature professionals of their profession. In environmental activities, interdisciplinary environmental education is strongly developed, which is fully carried out within the school. We can see environmental literacy in humans through mature forms of environmental rights and responsibilities[36].

Russia is one of the countries with high scientific potential. The strong development of environmental education in this country can be seen as a result of actions aimed at the state and world environmental policy called "year of ecology" in Russia 2017[5].

On the basis of ecological education conducted in the countries where the system of ecological education is analyzed above, it is necessary in the Republic of Uzbekistan:

- maintaining compulsory ecological competence in all Uzbekistan's educational institutions, under 4 of the law "On nature protection";
- it is still necessary to identify aspects in the higher education system that do not use foreign experience in the field of environmental education and upbringing, and on their basis to develop models for the development of environmental competence;

- Enrichment of state educational standards and curricula in Uzbekistan with specialized competences;

- implementation in educational programs of work on environmental promotion and propaganda in educational institutions of the organization of national events aimed at solving global environmental problems and their solution;

- to organize the institutions of higher education at the national level the socio-ecological activities aimed at the prevention of risks at regional, local and global level through selected students of specialties and broad ecological thinking, and to ensure the presidency in these activities “environmental party of Uzbekistan;

- training visits of students to enterprises operating in the Republic which is ecologically reproductive character;

- creation of electronic manuals on environmental education and the possibility of their use in a wide audience,

- to demonstrate that theoretical and practical classes conducted in accordance with vitagen technology are important in the mind of the student in his life processes;;

- the possibility of using "recycling" - (Recycling) products that have lost their practical function in human life and are reused, is carried out against.

The education system since Y.A. Komensky, he worked with the basic units-knowledge, skills and abilities. And the professional environment began to work with other units-competence. Therefore, the field of specialization works with competence, and education-with knowledge, skills and abilities. The education system in accordance with its requirements, in the event that a competent specialist is required on the basis of a certain order, education is entrusted with the task of reordering the knowledge, skills and abilities for the specialty in accordance with the competence.

What is the essence of a competent approach in the education system? What is a competent approach?

Competence approach in the education system is a set of information and data that allow the student to act effectively in various professional, life and personal processes, as well as to be the opposite of the concept of "knowledge acquisition". This focuses on the ability to use their skills in new, unforeseen and unpredictable situations.

The basis of the fast-growing modern economy is highly qualified and communication human capital. In one of the Pallas of the world community, which is in the period of development of acute information and communication, there is a lack that a specialist, limited only by knowledge, skills and qualifications, can not fully Express themselves in the field of their activities.

In the "explanatory dictionary of the Uzbek language" competence includes " the terms of reference of a particular body or official defined in official documents... the level of human awareness of any area, the degree of knowledge of this area " [27].

According to N. Muslimov, the dictionary meaning of the English term "competence" means "ability", but it also reflects knowledge, skills and abilities [22].

Competence-the ability to apply theoretical knowledge, practical skills and skills acquired by students in the field of biology, in practice in solving theoretical and practical problems facing them in everyday life [37].

B. H. Khodjaev described competence as "excess social requirements previously set educational preparation of the student required for efficient productive activity in a particular region" [42].

In the education system, much attention was paid to the competence development and characteristics of specialists. Competence is a social need, predetermined by the student in educational training, for effective activity in a certain field of activity [43]. Competence - is the existing individual characteristics of the student and a little experience in this field. Thus, competence is not to master individual knowledge and skills, but to master them

comprehensively in a generalized state. Competence-the totality of all creative, intellectual, purposeful, emotional, reasonable, axiologically personality traits.

Ecological competence-ability of acting creative people to make unexpected decisions and conclusions in ecological situations [9].

Under the environmental competence of students in research work Pistunova refers to the understanding of the environment as the most valuable value, creative solution to the environmental problems, the acquisition of practical skills in the field of environmental protection, as well as a set of ecologically necessary personal qualities of the disciple, humanity, predisposition to nature and the presence of feelings of care. The researcher considers the ecological competence as a combination of personal knowledge, axiological attitudes between man and nature, manifested in the students ' character and way of creative solutions to environmental problems in a set of skills in the conservation and protection of nature and the inherent human environmental properties [41].

V. A. Lay describes " environmental competence as the inclusion of ecological knowledge, abilities and skills in students aimed at prevention or minimization of environmental risks in environmental situations, the manifestation of the individual characteristics that shape ecological consciousness, thinking and world view, in accordance with the requirements of environmental education of the person [39].

Environmental competence - is the ability of students to environmental knowledge, skills, skills, skills aimed at the development of environmental thinking, consciousness, worldview, depending on the level of environmental education and education aimed at preventing or ending situations of General environmental danger.

Understanding environmental competence in relation to personality-oriented and professional activities in a conscious form of activity, through situations in which the student acquires an ecological nature, where his individual capabilities, experience are complex in the following areas of life:

1. The world of knowledge. In this layer, environmental competence is formed by studying the environment through various sources, conducting environmental experiments, making the right decisions in environmentally problematic situations.

2. Citizenship is a layer of society. Environmental competence in this layer arises in the performance of civil duties and responsibilities related to the environment, with the use of natural resources as consumers, through environmental actions and collective measures for the protection of nature.

3. Environmental competence in the socio-cocktail layer occurs through vocational training and work appropriate to the ecology.

4. Standard of living. Environmental competence in this layer focuses on a healthy lifestyle, free from various bad habits, and is aimed at the economical use of natural reserve resources and compliance with environmental safety in everyday life.

5. Cultural-educational layer. In the bosom of nature occurs by the choice of methods, activities that feed the person mineral-educational, spiritually.

If we analyze the basic competence of the future non-environmental specialist, then:

1. Competence to recognize biological objects and to understand and comment on the processes occurring in them

2. Competence to observe the processes taking place in biological objects and conduct experiments and conclusions

3. healthy lifestyle and environmental competence.

On the basis of basic and General competences arises environmental competence. As criteria of General and private competence, decisions should be made and held accountable in expected and unforeseen situations. Circumstances that reveal this cultural criteria will be as follows:

1. Connection with professional pedagogical activity aimed at self-realization and correction of future specialists;

2. Effective measures and practical projects aimed at maintaining health;

3. Knowledge of basic concepts and laws in the field of environmental science;
4. Systematic thinking about environmental concepts and their basic scale and the ability to apply knowledge, skills and abilities in expected and unforeseen situations;
5. to be able and prepared for environmentally oriented activities;

Citing the criterion of ecological competence of these competencies is determined by the spiritual development of ideas about environmental activities, the optimal ideological approaches to motivational-demand environment. We can see their development by the following criteria:

- 1) regulatory criteria. When dealing with man and the natural environment, spiritual laws develop.
- 2) axiological criteria. In the process of solving personal problems, demands and consumption develop as a spiritual goal.

Therefore in the process of formation of ecological competence of students it is necessary to pay attention to the process of ecological education and upbringing:

1. Achieving the integrity of General, professional and environmental education.
2. Consistency and continuity with continuous practice.
3. Drawing attention of national cultural traditions to national values and interests, territorial features, use and protection of nature
4. Humanizing environmental consciousness, thinking and culture via a socially active personality development.

The main factors in the development of environmental competence of students are:

1. Health protection. This factor develops through a healthy lifestyle.
2. Purpose-value-relevance. Develops through life blessings and their ecological value.
3. Integration. It develops as an ecological approach that reflects the holistic worldview of modern human development.

4. Civil rights and obligations in the field of protection and preservation of the natural environment are developing.

5. Through development, self-development, reflection. Environmental factors are formed through the search for meaning of life, professional and qualified environmental orientation and environmental culture.

6. Social consequence. Social partnership and partnership in solving environmental problems lead to environmental competence factors.

7. Activity. Identification of environmental problems, development of environmental projects, modeling, forecasting, application of new information technologies lead to the development of environmental competence of students [160].

Development of ecological competence of students, the structure of methodical system includes: targeted, organizational-active and result-oriented-analytical part aimed at environmental activities, fixed approaches, rules, part of the guidance system, the structure of the shape, methods of work, levels of training and understanding, control of knowledge, abilities and skills.

Scientific and pedagogical approaches to the methodological system and its technologies were focused on systemic, personality-oriented and practical activities. Humanistic aspects of development of ecological competence of students, acquire a synergistic nature, in the education of ecologically civilized personality is dominated by the personality, its system of values, actions, character and activities.

Emotional expression of cognitive activity is based on the development of values and guidelines. This manifestation of knowledge mainly occurs in direct contact with nature, out of practice and entering into a relationship. In most cases, several different forms of knowledge associated with educational tasks, types aimed at creative problem solving are used. In the process of holistic perception and cognition of information to build different methods: mental attacks, such associative links will be to search and use creative thinking and interdependence.

Axiology, studying the problems of mankind, explores the processes associated with its nature, environmental thinking, is aimed at preserving the values that are valuable to man, improving the ecological culture of the society of the individual. In the development of environmental competence of students is initially important to develop environmental thinking.

Ecological thinking is such human activity by means of which a person can accurately, fully, deeply and generically reflect reality in nature, conduct practical human activity, analyzing “nature-society and man”.

Students form ecological thinking, which results in the formation of ecological consciousness. Because in the process of assimilation of students of environmental knowledge, they appear understanding, attitude, environmental thinking and thinking to the factors of nature. As a result, we can see how students' attention to nature is growing, its axiological value is growing. As a result of formation of ecological consciousness ecological competence develops. And the ideal appearance of ecological competence is reflected in the form of ecological culture.

There are factors that form the basis of the methodological system of development of environmental competence of students:

- provision of group classes, communication links within the group create a holistic social and natural links,
- mastering skills, identifying the main current problems and conducting a full environmental study,
- the result of environmental activities should be the disclosure of the environmental process,
- the presence of an indissoluble connection with public, environmental structures, environmental and governmental bodies [23].

The methodological structure of the development of environmental competence of students will be divided into several stages: the first stage is a reflexive stage of motivation, which should be aware of the need for students to acquire knowledge and clearly define the goals and objectives. At the same time,

students get acquainted with environmental activities, initiatives and the main content of “environmental competence” and synthesize the science they study. The first step of this stage is the motivation of students. To this end, an environment is created for students to consciously perceive environmental processes (video, about the environment, about nature, about crises). The analytical content of the teaching laboratories at this stage is that the design of life processes (life events that create life experience, process design through educational dialogues between students and students, bringing education to everyday activities, the formation of the studied material as an emerging cultural stages, formation of own “me” through the understanding of values in life and a balanced attitude to the environment).

The second stage is reproductive and educational. Development of scientific ecological knowledge through practical experiments. Scientific environmental knowledge is based on experience and is aimed at further strengthening of knowledge, skills and competence. The process of mastering the algorithm of work on the project is aimed at the development of creative activity and is aimed at implementing the necessary environmental measures in a changing world. The theoretical part of the design uses the following.

Identification of the actual problem

Choosing a design theme

The promotion of tasks or ideas hypothesis

Demonstration and protection of creative work

The third stage is constructive. At this stage, students will demonstrate their "methods". At the constructive stage, the socio-psychological world of the individual is covered.

The presented project will again develop creativity. In a group of students, the topics may be different, but the basis on which the system is formed is unique. This stage also consists of several parts that:

Actualization of the considered aspect is carried out by means of associative means, images, videos, texts, etc.)

The extent of the problem studied and the level of awareness .

Acceleration of the studied topic with the help of local and private teaching methods with the help of several educational technologies

The fourth stage is the formation and development of environmental competence of the student's personality. The uniqueness of this stage is that the student's personality begins to feel the integrity with the world in his worldview. This stage allows students to implement vitagenic technologies, reflexive technologies, information and communication technologies, facilitation technologies and see the effectiveness of these technologies. At this stage, students will be able to independently analyze and evaluate the creative work they are doing. As a result, a creative and author's project will be executed. Another effective aspect of this phase is that there is also interdisciplinary integration of environmental knowledge. If such a creative project work allows the student to practice in the future specialty, then at scientific conferences it will be reflected as a creative research work.

The following features were defined under the environmental competent approach to students:

1. Environmental knowledge can be acquired not only by students but also by students so that they can conduct research and draw conclusions from its results,
2. Using students ' environmental knowledge together with skills in specific actions and fast processes,
3. Creating opportunities for students to experiment,
4. Analysis of acquired knowledge through research and experiments.

### ***ANALYSIS, RESULT AND CONCLUSION***

Since the XX century, environmental problems have been included in the circle of universal problems. To address this environmental crisis, researchers, public and government leaders from different countries argue that an environmental solution can develop not only through the development of technical, legal and demographic areas, but also through the reform of the education system.

The methodical system of development of ecological competence of students is shown in the form of integral structure in new social and ecological conditions (such as planning, realization, assessment and adjustment of ecological competence of students).

We are in the development of students' environmental competence. We decided to use Blum taxonomy. Blum taxonomy will help to develop thinking at the highest stages of learning, analyzing and evaluating not only the blind memorization of data, but also certain concepts, processes, procedures and principles of work. Bloom's taxonomy is a form of classification of pedagogical goals. B. Blum examines educational activities are mainly in three areas:

The cognitive basis is students' knowledge of perception and cognition of the environment. At the same time, through the cognitive stage in the educational process, the relations of nature-man-society and interaction through natural, social, sociological and technological laws, theories and concepts are revealed.

Affective-at this stage, students develop knowledge about nature and environmental protection through emotional reactions. It is at this stage through the senses focused on the definition and understanding of the value system, mastering the spiritual and aesthetic relations to the natural environment, inept use of natural resources and the development of consumer culture, a sense of beauty and enjoyment of the environment, maintaining a healthy lifestyle.

At the affective stage, it is a part of the educational process that leads to development, forming the interest, mood and emotions of students to nature and its factors.

At the stage of psychomotor criterion it is necessary to develop ecological activity of students to increase ecological activity of students and to reflect ecological literacy in the form of competences. At the same time, three main parallel training lines were used in the design of educational activities: traditional educational tasks that require intensive activity, creative solutions of educational tasks in the form of large-scale educational projects.

The research work is devoted to the training of competent personnel of Mature ecology through sustainable development of ecology and environmental protection in the process of exchange of stages of development of society. The complexity, scale and permeability of the object in the research work determine the level of work. As a result of theoretical analysis of scientific concepts of research work, experimental and diagnostic studies in scientific and pedagogical processes, the development of a concept that combines the following interrelated sections of education on ecology and environmental protection, which develop the environmental competence of students, was achieved:

1-methodological part of the study, which is a structural, synergetic, axiological, personality-oriented and practical structure;

2-theoretical, studied basic ideas in the system of understanding and cognition in the study;

3-formal, focused on the study of the basic forms of structures, including: structural and functional model, spatial and temporal model aimed at the development of environmental competence of students, as well as models representing factors.

4-technological, activating part based on the design of a methodical system aimed at the development of environmental competence of students.

5-analytical-effective, showed the experimental analysis and validity of the developed theory and concept.

The methodological basis of the research work was developed on the basis of several requirements:

- to study the essence of the research aimed at the study of society as a complex holistic system in the development of environmental competence of students;

- determine whether the structure and content that develop students ' environmental competence are covered;

- determination of mechanisms for the development of environmental competence of students based on independence, self-development and interaction with nature;

- to create a methodological system aimed at the development of environmental competence of students;

- to develop a system that reveals qualitative indicators aimed at the development of environmental competence of students.

The development of a system of quality indicators has led to an increase in the efficiency of the methodological system, the technology in it, the level of environmental competence of students and the activation of environmental activities. Reflection of continuous action manifests itself as a means of self-determination. Reflection leads to the fact that students independently behave in environmental processes, analysis of results, reveal clarity of thinking.

For the development of environmental education and sustainable development in higher education and improve the environmental competence of students must perform the following tasks:

1. Together with the Ministry of higher and secondary special education, sectoral ministries and departments to organize short-term training stages for employees, specialists responsible for the environment of organizations and institutions of the enterprise

2. Harmonization of standards in the field of environmental and sustainable education in the system of higher and secondary special education with international standards;

3. Creation of educational and methodical centers on ecology and education of sustainable development in the system of higher education;

4. Strengthening cooperation with ministries, state committees to ensure the conduct of students in enterprises and organizations in connection with the development of qualification practices in the field of ecology;

5. Provision of round tables, conferences with participation of specialists of the State Committee of the Republic of Uzbekistan on nature protection and

interested state and non-governmental organizations in institutions of higher education, study of international experience and creation of high-quality textbooks for students on ecology [21].

6. In environmental education, the objectives will be to provide students with basic knowledge, to study environmental issues, to develop environmental skills and skills, to link learning through different methods. One of the main tasks of teaching ecology is to improve the content of education, teaching environmental ideas and concepts, laws, the use of effective teaching methods that develop the thinking of students, increase their activity and ensure independence in the learning process.

In October 2005, UNESCO published a scheme of international commitments. (International Implementation Scheme 2005 - 2014). In accordance with the efforts of the international community, the Republic of Uzbekistan also adopted decisions on national goals and objectives, roadmaps in the field of sustainable development for the period up to 2030 [29].

On the basis of the international community movement, a theoretical and practical model of education for sustainable development was developed. And the basic advantages of this model are environmental competence, environmental knowledge provided to students in order to melt in the education of the ideal sustainable development should be inextricably linked to philosophy, Economics, mathematics, sociology and social Sciences.

This is evidenced by socio-historical circumstances identified in the XX century, it should be noted that the need for education with the integration of ecology manifested in the following:

1. the need to ensure an environmentally sustainable environment in the economic, political, legal, spiritual, cultural and social spheres of society;
2. this is a scientific and technical revolution that contributes to the emergence of man-made approach to nature and anthropocentric situation;
3. the need for systematic knowledge for the racial use of natural resources on the basis of the global influence of people on nature in ecology;

4. within the natural, exact and social Sciences for the wide development, distribution and consumption of natural resources for the benefit of society;

An integrated learning system reveals the world around us. In the integrated system of education there are the following pedagogical opportunities: systematic assimilation of knowledge by students, generalization of skills, interrelation of the occurring events, complex character increasing intellectual knowledge of pupils of primary schools [8].

Interdisciplinary integrated environmental education addresses the following issues:

1. through studying the essence, content and conditions and means of integrated study of ecology and environmental science, the stabilization of the human-nature-society system is achieved,

2. after reviewing the theoretical and pedagogical-methodological principles of integration of the content of ecology and environmental science, students will receive a comprehensive inventory of the global and natural knowledge,

3. relevance of environmental knowledge in improving students within their educational and cognitive activities, independence and integrity of knowledge is proved,

4. synthesis of socio-economic, organizational, psychological, pedagogical, technical and technological knowledge with the science of ecology and nature protection will lead to the effective emergence in society of requirements and opportunities put on the labor market.

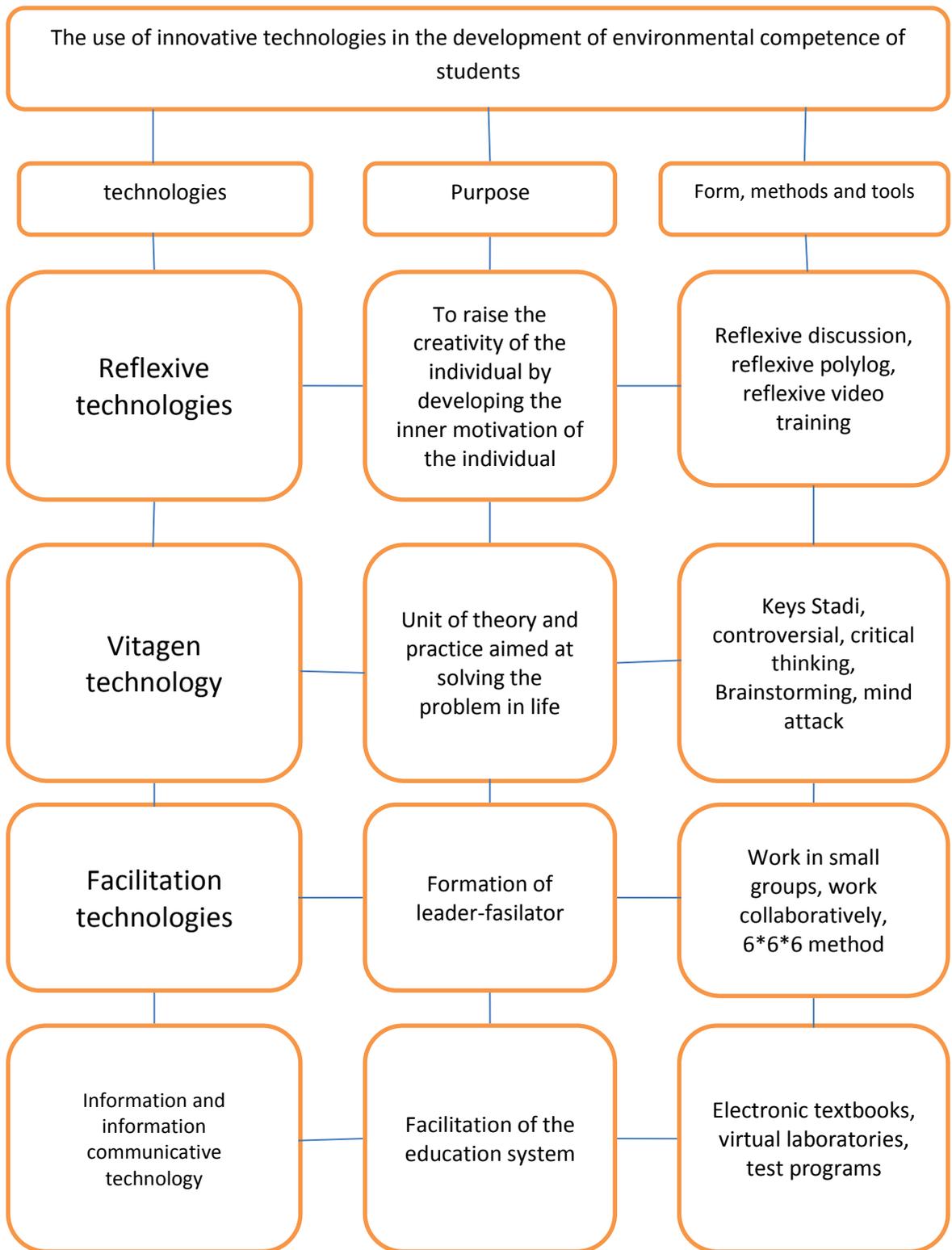
When studying the factors that make up competence, its components can be basic, defining, complementary and auxiliary components. On the basis of the above factors and components and criteria, a model for the development of environmental competence is formed. The practical technology of using innovative technologies in the development of environmental competence of students was developed.

We have laid the Foundation for the following technologies for the development of environmental competencies of students in the process of research:

1. vitagen technology
2. Reflective technologies
3. Information and communication technologies
4. facilitation technology

Table 1

*Innovative technologies in the development of environmental competence of students*



The use of vitagene technology in the educational process has many positive features, and students received the following environmental competence:

1. He formed the basic and local competencies-adaptation to modern life with the help of multidisciplinary skills.

2. The level of training increases, increasing the trust and demand for the student.
3. The younger generation brought up life skills.
4. He developed the idea that the educational process is large-scale.

When studying the factors that make up competence, its components can be basic, defining, complementary and auxiliary components. On the basis of the above factors and components and criteria, a model for the development of environmental competence is formed. The practical technology of using innovative technologies in the development of environmental competence of students was developed.

The knowledge acquired by students becomes important for him after the student is formed at the level of the value of his personality. All knowledge acquired from scratch, also can not be valuable to humans. If the student is able to use environmental knowledge, it will be among the most important values at the axiological level and will be a practical result. Vitagen the basis of the technology includes three-dimensional holographic approach: vitagen (experience), teaching (scientific knowledge) and learning (additional information sources) [3].

Facilitation technologies-is the direction of students in the learning process to perform educational tasks in small groups, which leads to the formation of a facilitator – leader. In solving environmental problems, it is important to prepare facilitators with creative experience. The most important principle of facilitation technologies is a group solution of the problem.

We used three bases for the introduction of facilitation technologies in the educational process:

1. Accurate (similar, exact match) data
2. Free and competitive choice
3. Internal responsibility for this choice.

It is scientifically confirmed that these three foundations will be used by students in the process of conducting audit classes, which will lead to the formation of a large number of leading leaders from among future professionals.

Since facilitation technologies account for environmental training, students show that such trainers have a high ability to effectively use and generate in them a certain scientific outlook and become facilitatory able to find the correct solution in expected and unexpected situations in the future. Eco-psychological training is a holistic view of environmental education, the formation of environmental consciousness of the individual, based on socio-psychological training.

Using ecological-psychological training of students to address the following questions:

1. Formation, development and bleaching anthropological views on the nature of the students;
2. Changing the attitude of man to nature;
3. Mastering skills and competences development;
4. Perceptions develop a person's ability natural factors.

In the process of conducting theoretical, practical and self-study with students using the following environmental training helps to develop ethical values of students.

Reflexive technologies-must be used because they are able to apply knowledge, skills and skills acquired by students in new and unforeseen situation.

This technology reorganizes student thinking and practical activity, thanks to its reflexive psychological mechanism. When implementing reflective technologies in the educational process the teacher (trainer, moderator) can develop internal motivation of the individual, enhance the creativity of a specialist, relying on his personal capacity, to bring their activity to new stages.

There are the following types of reflection:

- Situational reflection-motivation and self-esteem is manifested in the form of Chi. In this case, the situation not only includes the coverage of the student, but also motivates his elements to think and analyze the process.
- Retrospective reflection-manifests itself through the analysis of specific actions and events that have their place in the past.

- Perspective reflection-perception-oriented forecasting of future events and events, as well as forecasting and effective execution of a pre-planned event [44].

And the introduction of information and communication technologies in the education system is a necessary link of the modern information world. In order to facilitate the system of education used computers, CD-ROMs, web sites, digital educational resources, interactive models, etc. e-mail. The use of information and innovative technologies in the organization of the educational process at the local and private methodological levels is important in the development of environmental competence of students.

Intellectual training of a teacher is carried out through computer programs and is manifested in the form of a teacher - Manager, consultant. The use of color, image, sound through multimedia accelerates the perception of educational information in students and forms reflective skills. Digital educational programs provide high-quality, accurate control over the educational activities of students.

constantly introducing information and communication technologies in the education system, developing professional development of students and teachers, develops creativity.

In order to develop environmental competence and study its formation, the students were initially studied the existing shortcomings. On the basis of a special plan developed to assess the situation in the higher education system, pedagogical experimental and testing work was carried out.

To determine the environmental competence of students, the following tasks were put forward:

- early state of environmental competence of students;
- the level of environmental competence of students in the system of continuing education;
- to study and determine the availability of pedagogical conditions for the development of environmental competence of students in the course of theoretical and practical training;

- conducting questionnaires with the participation of students in order to improve the environmental competence of students;
- development of a set of activities that will be the basis for the development of environmental competence of students: lectures, workshops, laboratory classes, talks, intellectual competitions, open lessons and games;
- application of environmental knowledge in practice, based on the chosen future specialty of the student of higher education;
- to form environmental thinking in the minds of students and bring it to the level of competence;
- generalization of the results of experimental and test works carried out within the framework of the research problem, and their analysis and generalization using mathematical and statistical methods.

To this end, "the map of actions for the formation of environmental competence of students has been increased." In accordance with this, it is required to develop the implementation in practice of developments implemented on the basis of the ideas of the theory of development of environmental competence in students. The pedagogical experience was conducted with the participation of students of the National Institute of arts and design, Tashkent state pedagogical University and Gulistan state University.

Students are lack of knowledge of the goals and objectives of sustainable development in the field of ecology, identification of the level of environmental risks, lack of understanding of how to overcome them and lack of knowledge indicate the need to develop environmental competence of future specialists.

As a result of the test work, summarizing the students answers to the questionnaires, we came to the following conclusion that students form three categories according to their level of environmental competence.

The first group is a high level-students who are part of this group have the following characteristics: the desire to develop knowledge in the field of ecology, to actively solve environmental problems and controversial issues, an increased sense of responsibility among students as a result of activities with environmental

content, increased attention and interest in knowledge in the field of environmental literacy, high environmental values of nature, a high level of organization in practical tasks for the protection and conservation of nature.

The second group having an interest in ecological knowledge and environmental problems of the students of medium level, as a result of activities related to aesthetic and cognitive activity of students, reflects the priority of ideas “should be protected” regardless of the benefit and harm natural resources.

The third group is a junior group of students seeking a superficial perception and understanding of environmental knowledge and action. At the same time, students perceive the environment as a means of meeting human needs and requirements. While environmental values in the system of human values occupy a high place, not given sufficient importance in student life, students face problems in solving non-standard tasks and tasks. It was noted that the students lack the skills of environmental experiment, as well as low attention to the nature in which they live, there is, although little.

In the learning process, the development of environmental competencies of students was carried out in several stages. The first stage is an educational process that promotes deep ecological knowledge, which is formed on a large scale. It was in this process that sufficient environmental knowledge was provided to students. But with the transfer of environmental knowledge to students it is impossible to develop their environmental competence. This was studied by the state on the basis of the program of sustainable development the content of the existing socio-ecological relations ecological-politics, propaganda, and adopted at the same time, applicable environmental laws, procedures, environmental education activities, promoting their advocacy through the integration of science and interdisciplinary integration, which is a source of environmental knowledge, and environmental-significant expectation, and the degree of understanding of the content of the environmental activities of their organization.

The current situation in the development of environmental competence were defined on the objects of research, namely with students MRDI, TSPU and GulSU.

Early environmental competence was determined through interviews with students and questionnaires, and their results were divided into 3 categories of factors related to General concepts of ecology, feelings and views on nature and the environment, attitude to the environment, and assessment work.

The results were analyzed using Student tests of pedagogical experience statistics. In order to compare the development of experimental and control groups, the average cost of development in the groups was recognized. Here is the rate of assimilation (estimated value  $\bar{x} = \frac{\sum x m_j}{N}$ ), they take the values of 3-low level, 4-medium level, 5-high level.  $m_j$  - is the number of repetitions of grades,  $N$ - is the number of students participating in the experiment.

Thus, according to the above calculations, the hypothesis  $H_0$  is rejected because all values of  $T$  are greater than critical, and the hypothesis  $N1$  is accepted. This shows that the results in the selected groups were higher than in the control group in the experimental group, which was proved by mathematical statistical methods. It was proved that the efficiency in the experimental group increased from 1.14 to 1.17, while in General it increased by an average of 1.15 times, that is, by 15 percent. According to the results of the pedagogical experimental and test work environmental competence of students in higher education developed as follows:

- \* The development of local competencies on a large scale with a special level was born perfectly in the integration of science,
- \* In accordance with the program of sustainable development of nature protection on the way to the life-changing work of the scientist on a large scale ecological maturity of students developed with a special level,
- \* The students were given scientific, emotional and cultural ties;
- \* Positive indicators of environmental knowledge and activity increase among students;
- \* Students mastered knowledge and competencies at the construction level, which are used in order to choose environmentally - friendly profession.

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