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IMPROVING THE TECHNOLOGIES OF HUMANITARIZATION OF TEACHING ASTRONOMY IN GENERAL SECONDARY SCHOOLS ON THE BASIS OF DIDACTIC PRINCIPLES

Dadaboeva Feruzakhan Olimjonovna
Kokand State Pedagogical Institute
Rakhimov Kamoliddin Anvarovich
Branches of the Tashkent State Technical Center named after Islam Karimov

Anotatsion*:* this article aims to provide methodological recommendations on general issues of how to train an astronomy course in secondary schools by strengthening its humanitarian potential for the program. In general educational schools, opinions are given on the humanitarian potential of the educational subject of astronomy as a source of humanitarization of education in its teaching.

Keywords: humanitarization of education, humanitarian potential, humanitarian education, subject of study, educational process, didactic principles.

Teaching the school astronomy course aims to form in students scientific representations about all observable astronomical phenomena, as well as to develop in them an interest in the world of astronomical phenomena (fig.

The goal of general secondary education, on the other hand, is to develop the student's abilities, to educate in him a sense of responsibility for himself and the progress of society, to create opportunities for the formation of social mobilization. The course also sets itself the task of educating students in the spirit of cultivating the skills of knowledge of the universe, developing their thinking, feeling the practical significance of Astronomy in a person's daily activities, in particular, its positive impact on the scientific worldview.

In other words, in the study of educational materials on their main ideas, laws in the teaching of physics and astronomy courses, in-depth analysis of their scientific essence, special emphasis on methodological and worldview content, formation of students ' scientific worldview on the basis of life, techniques and other positive activities of society and civilizationis an important requirement of today. When teaching the basics of science on the basis of such a goal, it becomes important to set the following tasks, to ensure its science:

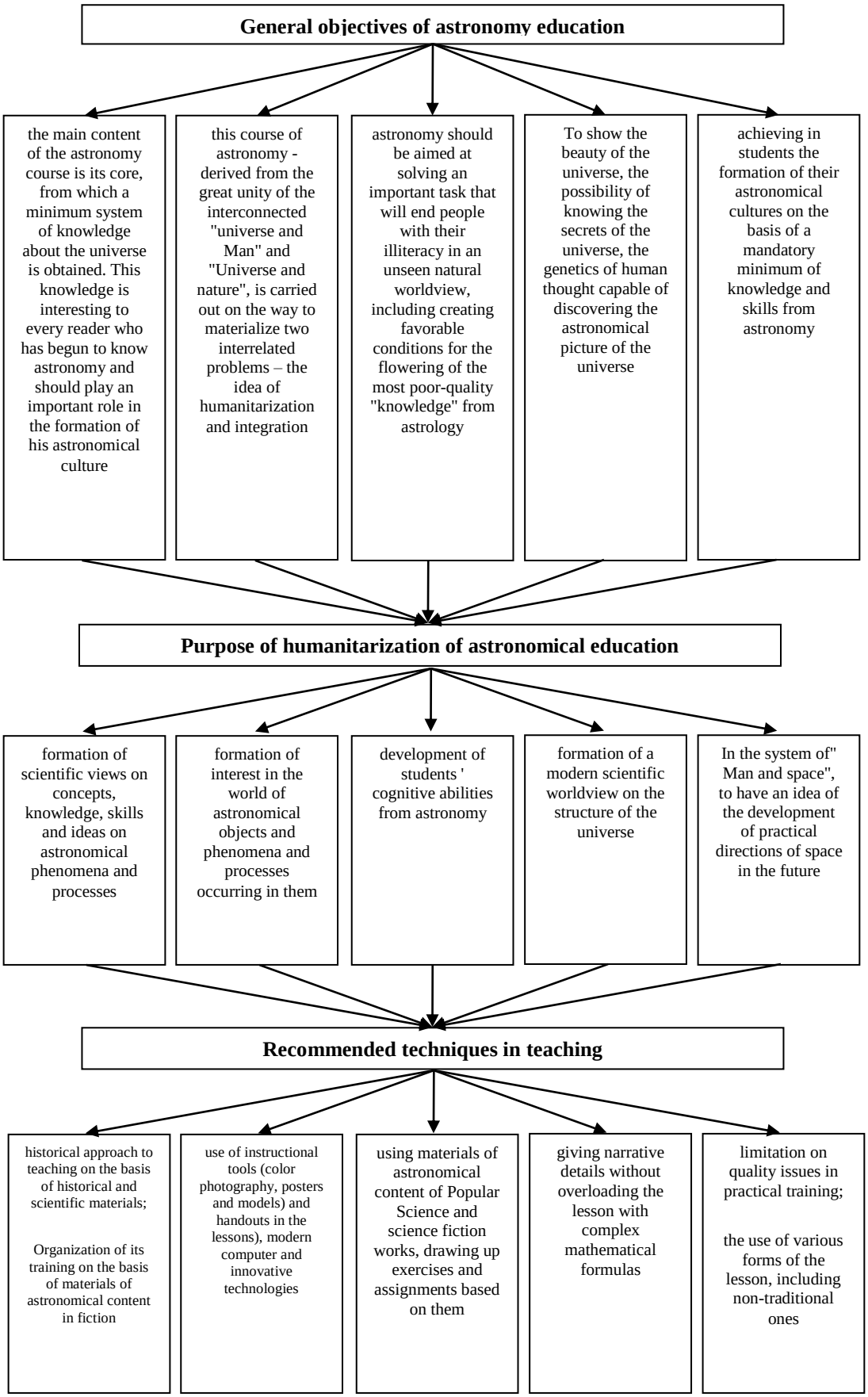

Figure 1: purpose and methods of teaching astronomy in general secondary schools

- to put an end to the myth, "miracle"and theological views, to form scientific beliefs on scientific views, which are promoted by pre-Hali media sources on all astronomical phenomena and processes in students;

- issues in the study of the heliocentric doctrine of the structure of the universe understanding the role and significance of the scientific approach in the disclosure of the laws of nature (primarily Newton and Kepler;

- it is at the birth of theories, to make it understand that scientific research has become important in history;

– the role of cause and effect, the transition from quantitative changes to qualitative changes and other regularities in the course of the evolution of the universe on the basis of the theory of cognition of philosophy;

- one whole of the universe;

– with the opening of the law of gravity and Kepler of the whole universe, the awareness of the secrets of tin nature, the existence of the possibility of understanding the universal significance of our civilization in the implementation of space flights today;

- formation of concepts and perceptions of the scientific worldview in place of objective laws revealed in the formation of man as a person, in physics and astronomy;

- the creation of the opportunity to form positive relationships and motives for the people of our planet through the study of astronomy and the development of society today by covering the role and role of the people of our planet in social life on an ecological aspect.

It is important that by studying the laws of nature as a person, including the evolution of The Sun and stars, the possibility of preventing energy shortages in our future civilisation is created there in the emergence of the life of intelligent beings (human beings), and in the future, in Microbiology, Genetics, the expected innovations of evolution are the basis for

Requirements for training, knowledge and skills that students must achieve in the course of astronomy

- astronomy is able to study the movement, structure and development of celestial bodies and apply its laws in their practical activities;

- that astronomy is one of the fundamental sciences about nature;

- understanding the material unity of the universe;

- processes in celestial objects take place on the basis of conservation laws;

- the dynamics of objects of the universe and their systems, the possibility of knowing the processes taking place in them using various methods that have determined their physical tabati (observation, mechanical, spectral and other);

- knowledge gained on all phenomena and processes affecting the celestial bodies;

– to all myths and fictions woven about the universe in its study (astrology, unknown flying objects – Nuo, cosmic aliens, etc.)k.) do not fly;

- astronomical observation instruments and other additional instruments telescope, binoculars, simple and sliding map of stars, determination of the sides of the horizon according to the Polar Star;

- to form a belief that astronomy is one of the most leading disciplines in the formation of the worldview of young people;

- astronomy, realizing in which "corner"the space – Earth in which we live is in the universe, in which a rare phenomenon is most likely formed, which has become an intelligent being during its evolution, it is necessary to appreciate such a wonderful gift of nature, to appreciate such a great gift, to feel the duty and responsibility of each person in preserving it;

- To study the planets of the solar system well and understand that in the future, when necessary, they can be used to solve many scientific, life problems, using their resources, in part as space;

- formation of generalized knowledge by planets (for Earth-type and Giants), comparison of the physical conditions of planets with those of the Earth, interest in living conditions;

All subjects studied in secondary schools have rich materials, such as educating students in the spirit of a scientific worldview. A special place in them is occupied by Natural Sciences in particular, including astronomy.

In the teaching of astronomy, the education of students in the spirit of the scientific worldview sets the following main tasks for the teacher:

1) the formation in students of correct scientific representations on concepts about the nature of celestial phenomena and the structure of the universe;

2) transform the knowledge gained from astronomy into beliefs. To do this, first of all, students and young people should be fully armed with scientific knowledge on this subject. Science with its essence reflects material existence and phenomena, it studies the laws of objective existence, connections between objects and phenomena. Science denies the existence of supernatural forces in nature. It also explains all the phenomena that occur in nature and in society, based on the achievements of the natural sciences and social laws. That is why there can be no question of implementing a scientific worldview without establishing education Well [2].

The science of Astronomy in the life of ancient peoples, including the peoples of the East, develops the practical significance of astronomy (measuring time, determining the geographical position of a place, finding Horizon sides, etc.), as well as the transfer of the perception of the present time about the structure of the universe and the place of the planet Earth in it to In this case, the organization of the content of theoretical and practical classes by the teacher, enriched with humanitarian ideas, is one of the important didactic requirements.

The effective development of natural-scientific (astronomical) education is impossible without increasing attention to the humanitarian component (potential)of the content of each educational topic. Because not limited only to physical and astronomical knowledge, the spiritual world of students should also be developed in parallel during the lesson. Outstanding

scientist, academician E.P.Speaking about the humanitarian potential (meaning) of astronomical science, Levitan said: "This is a worldview, that is, from the point of view of determining a person's attitude to the whole world, the problem of "Man and the universe" is of serious importance. From the Copernican period, humanity gradually abandons the understanding of its central position in the solar system, in the Galaxy and in the universe. At the same time, the development of astronomical science can not be called life (and even intelligence) either distributed in the solar system, in the Galaxy, in the universe, or in general. Thousands of threads on earth are connected with the universe, and a person like that is not only the child of The Sun, K.A.As timiryazev said figuratively, but is a child of the universe, of the Galaxy."

When discussing the issue of humanitarization of teaching natural and Mathematical Sciences, we need to separately recognize the need for the widespread use of methods and tools used in teaching the humanities. It is he who separately notes the important elements of the activity of effective knowledge of disciplines and approaches to the harmonious use of methods in the system of effective orienteering of subject methodological activity in the correct and methodological aspect, the use of tools and techniques the comprehensive impact of the teacher on students is considered the main task, ensuring the development of

The source of information recorded by teachers is in different ways, and its presentation is carried out differently. Therefore, important factors are considered in which information is transmitted in the form of a process. Consequently, the process of transmitting information is different, it is made up of live words of the teacher, in which it is required that the oral speech be very Bama, one way or another occurring (impronzavon), this process creates conditions for the audience that encourage direct communication. If the teacher uses different approaches to attract the attention of the student, not forgetting only the content of the educational material in his statement and focusing on the form of expressing his thoughts, then his statement is not only supported by the students, but also arouses their interest in the information transmitted in them.

For subjects in the humanitarian cycle, scientific sources – theoretical, artistic content, separate methods for their analysis, approaches are important for mastering humanitarian subjects, with active civic motives in the educational activities of students, their reflection in the students ' own thinking.

A table is provided for organizing lessons intended for humanitarization [Table 1]. The elements of the table are in the form of a matrix, the intersection points of which allow you to select a specific methodological tool. It will also be possible to determine the methods of its organization and use in the lesson. According to the objectives of the lesson, depending on the direction of the class, the design of various lessons, both in shape and in content, is envisaged. This, in turn, allows you to diversify the activities of students. Therefore, teaching can not only be presented as mastering the standards set by the teacher, but also focuses on both the personal experience and the potential of the teacher. At the same time, in the process of teaching, the general methods of learning activity turn into their own, individual methods, which, as a result, lead to the acquisition of personal experience [6].

So, to humanize natural-scientific education, it is necessary to use the research methods of the humanities. Through the targeted use of these tools, making reasonable choices, we will be able to organize the activities of students in the course of the lesson in a comprehensive manner.

Organization of perception of information and its processing, assimilation, based on the capabilities and specific orientation of the subjects of the humanitarian cycle, is associated with the organization of the activities of readers. In this way, the most common educational methods include the methods of organizing the activities of students, as well as educational and natural tools (presented in Table 1).

Table 1

Lessons intended for humanitarizationmatrix for organization

The tools that a person needs for formation, development, education, upbringing	**Organization of students ' activities and demonstration methods**						
	Hearing the teacher's story	Working with text	Theatricalization	Viewing Audio and video plots	Educational tours	Creating an "image" of the phenomenon	Solving issues
Observationofastronomicalphenomena	+	+	+	+	+	+	
Poems	+	+			+	+	+
Fairy tales	+	+		+	+		+

Writings from literary and popular science works	+	+		+			+
Pictures, reproduction of pictures	+	+		+		+	+
Interdisciplinary stories	+			+		+	+
Biography of scientists	+	+		+	+	+	
History of findings (phenomena)	+	+		+	+	+	
Archival materials: description of initial experiments, sketches from the work of scientists	+	+		+	+		
Multimedia presentation	+	+		+	+	+	+

The design of the pedagogical process demonstrates in itself the process on which the "thinking" of the employee, which should occur, is based. Design is determined, on the one hand, by knowing the purpose of education and the content of the project, the capabilities of students, and on the other, by knowing the ability to change (develop) their personality. Within the framework of our study, a model of the context of the process of pedagogical humanization of the school Natural-Scientific (astronomy) disciplines was developed (fig.

The school was aimed at developing the astronomical scientific worldview of students by humanizing the science of astronomy. His educational, educational and developmental goals were clarified. Methodological approaches aimed at opening up the humanitarian possibilities of astronomical science constitute the content of the model. Also, the humanitarian possibilities of astronomical science were determined. The conditions for the humanization of the school's natural-scientific sciences (astronomy)were introduced. In the organizational and activity part, the design process of humanitarization of astronomical education was proposed. As a result, it became known that students will form private and base competencies related to the science of astronomy.

The model of the pedagogical process is divided into the following components: purposeful, meaningful, organizational-operational, consequential. The design of the educational process is the appearance of pedagogical activity, which is characterized by the fact that the technological structure of the educational process has the totality of techniques and tools that guarantee the result of all training.

In the target component of the model, the general educational goal of developing the astronomical scientific worldview of students by humanizing the school's astronomical science is determined, and their educational, educational and developmental goals are separately outlined.

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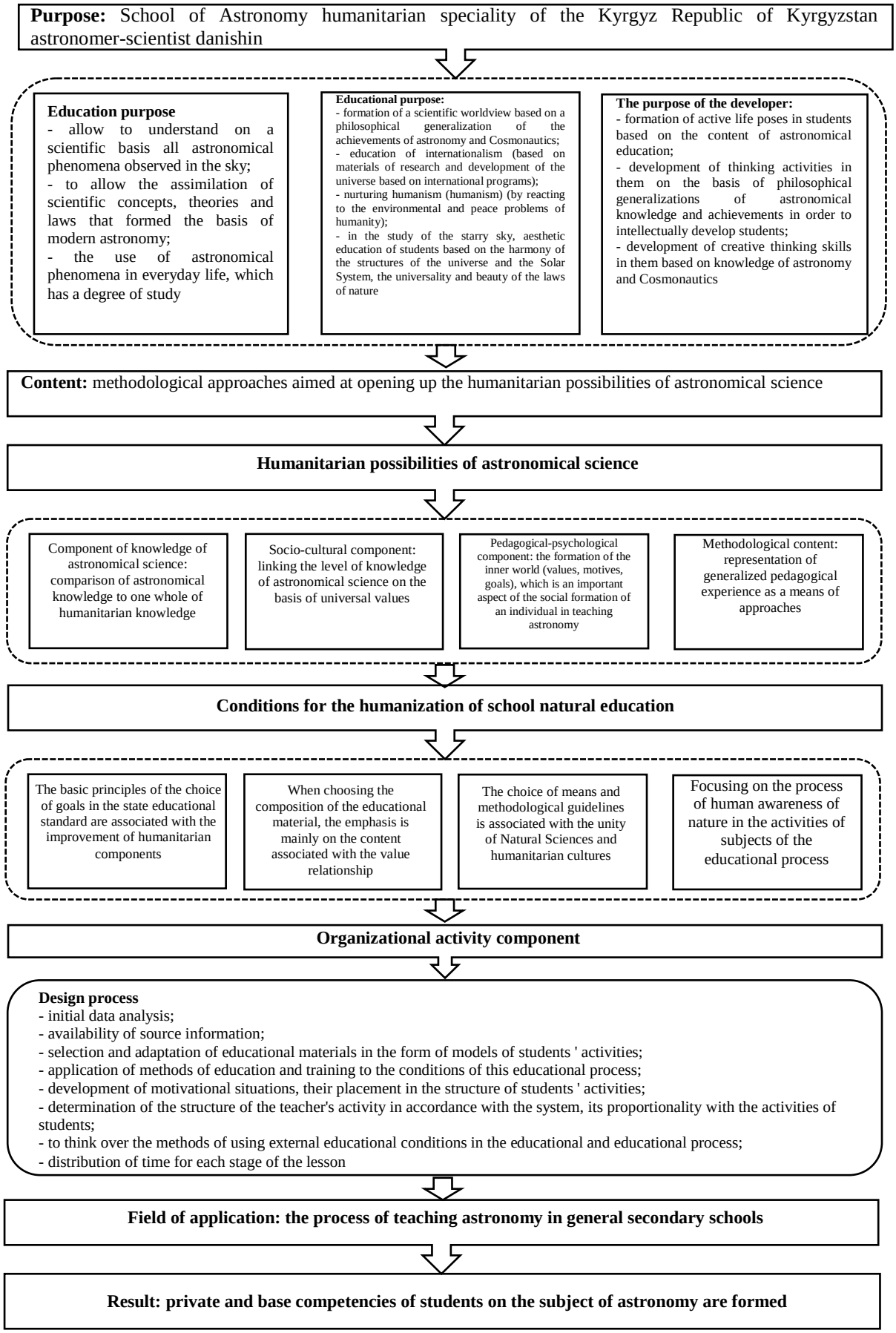


Figure 2. Model of the context of the process of pedagogical humanization of school Natural-Scientific (astronomy) disciplines

Educational purpose:

- to make it possible to understand on a scientific basis all astronomical phenomena observed in the sky;
- to allow the assimilation of scientific concepts, theories and laws that formed the basis of modern astronomy;
- the fact that astronomical personnel have the ability to use in everyday life.

Educational purpose:

- formation of a scientific worldview based on a philosophical generalization of the achievements of astronomy and Cosmonautics;
- education of internationalism (based on materials of research and development of the universe based on international programs);
- nurturing humanism (humanism) (by reacting to the environmental and peace problems of humanity);
- aesthetic education of students in the study of the starry sky on the basis of the harmony of the structures of the universe and the solar system, the universality and beauty of the laws of nature.

The purpose of the developer:

- formation of active life poses in students based on the content of astronomical education;
- development of thinking activities in them on the basis of philosophical generalizations of astronomical knowledge and achievements in order to intellectually develop students;
- development of creative thinking skills in them on the basis of knowledge of astronomy and Cosmonautics.

A meaningful component of the model is methodological approaches aimed at opening up the humanitarian possibilities of astronomical science (personality orientation, competence, etc.).), which includes the humanitarian possibilities of astronomical science and the conditions for the humanization of school education.

The humanitarian possibilities of astronomical science are described as follows:

component of knowledge of astronomical science: comparison of astronomical knowledge to one whole of humanitarian knowledge;

socio-cultural component: linking the level of knowledge of astronomical science on the basis of universal values;

pedagogical-psychological component: the formation of the inner world (values, motives, goals), which is an important aspect of the social formation of an individual in teaching astronomy;

methodological component: representation of generalized pedagogical experience as a means of approaches.

Also, within the framework of our study, the conditions for the humanization of school natural education are included. The main principles of the choice of goals in the state educational standard are to correlate with the improvement of the humanitarian components; to strengthen the focus on the content in the selection of the content of the educational material, which is mainly associated with the relationship of values; to take into account the connection of the activities of the subjects of the educational

The design process sequence is presented in the organizational activity component:

- initial data analysis;
- availability of source data;
- selection and adaptation of educational materials in the form of models of students ' activities;
- application of methods of education and training to the conditions of this educational process;
- development of motivational situations, their placement in the structure of students ' activities;
- determination of the structure of the teacher's activity in accordance with the system, its proportionality with the activities of students;
- to think over the methods of using external educational conditions in the educational and educational process;
- distribution of time for each stage of the lesson.

The field of application of these stages provides for the process of teaching astronomy in general secondary schools.

In the resulting component of the model, students are expected to form private and base competencies related to the science of astronomy.

In order to identify the problems associated with the teaching of Astronomy in general secondary schools, it was contacted by several professional development centers (Regional Center for retraining and professional development of public education employees of Fergana region, regional center of ICRC under Chirchik State Pedagogical Institute of Tashkent region), 90 physics and astronomy teachers were interviewed and addressed with questionnaire questions (Appendix 1).

The answers in each of the questions asked in the questionnaire were divided into three levels of answers, divided into the following levels in relation to the answers of the teachers to the questions asked:

high level-those who have been able to think positively (they have been able to express their opinion, are aware of the program and content of Science, and various interesting techniques and tools in teaching science can also use interdisciplinary communication);

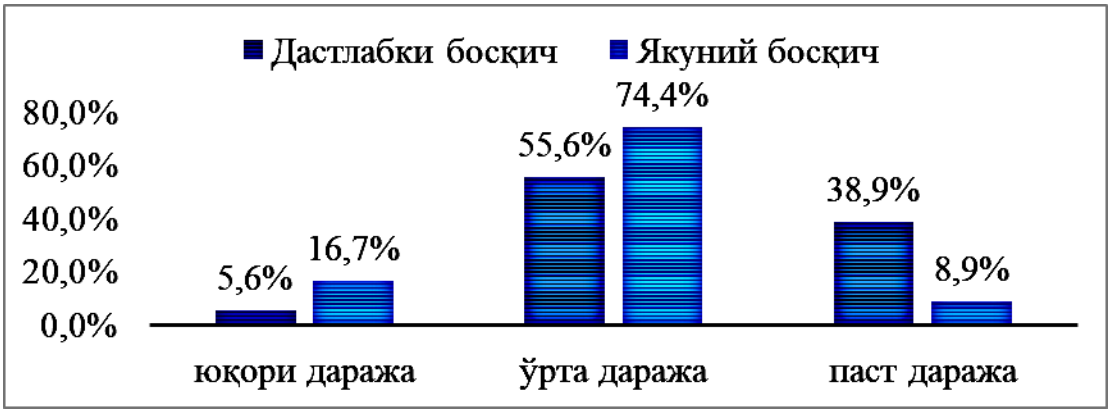
intermediate level-those who have been able to think positively in part (partially elucidate their own opinion, are sufficiently aware of the program, content and news of Science, and have difficulty using various interesting techniques and tools in teaching science);

low level - keeps vague thoughts (answers to questions no, do not know, do not use additional resources, methods and means of teaching).

The answers to these questions were presented in the table on the basis of the results of lectures and seminars on the topic “its content in teaching astronomy as a source of humanitarization of Education” (Table 2).

Table 2

Stages of the experiment	**Number of participants**	**High level**	**Middle level**	**Low level**	**Positive assimilation**
Initial stage	90	5	50	35	55
	100%	5,6%	55,6%	38,9%	61,1%
Final stage	90	15	67	8	82
	100%	16,7%	74,4%	8,9%	91,1%



3-picture. From trainees of training centers analysis of the obtained questionnaires

In the process of observation, the following issues were studied based on the questionnaire questions asked to teachers [3,4]:

1. To what extent are the problems and shortcomings of teachers in teaching astronomy.
2. To what extent they understand the concepts of humanitarization of education and the humanitarian potential of astronomical education.
3. On the basis of the humanitarization of astronomical education, the presence of the possibility of ensuring to what extent the educational and developmental aspects of teaching are, as well as the fact that this has an impact on the quality and effectiveness of students ' knowledge.
4. It was found that teaching based on adherence to the principles of humanitarization of astronomy greatly helps students to increase their interest in science, expand their scientific horizons, assess to what extent they influence the formation of the skill of comprehending the universe in a holistic way.
5. Difficulties in the humanitarization of astronomical education, determining the place of astronomical education in education and training of its humanitarian potential.
6. Teaching astronomy on the principles of humanitarization of education – it was determined that it has significance in the development of students ' creative abilities. The question is determined by answers, observation and questionnaires, with the help of tests, with the help of questions and answers asked by students, how students have mastered the teaching materials, their intellectuality is determined by the questions they ask rather than their answers.
7. The role of its integration with other sciences in teaching physics and Astronomy in the understanding of phenomena of being.
8. The fact that astronomical education has an important role in educating young people, preventing them from being given to various myths and negative vices.

The questionnaire questions of such content, the humanization of natural-scientific sciences (astronomy), as well as their appropriate use in teaching them of their powerful humanitarian potential, the development of students ' scientific worldviews, the holistic understanding of the universe in them, the feeling that they are also part of it, and the fact that our residence in them is an important tool in

The analysis of the questionnaire revealed that the humanization of astronomy is an important problem, the disclosure of the humanitarian potential of astronomical education – an important role in increasing students ' interest in the basics of Science, the development of independent reading activities, the identification and education of their creative abilities.
Pedagogical experience-testing aims to determine to what extent the proposed methodology for applying its strong humanitarian potential in teaching astronomy is effective.
In teaching astronomy:
– frequent references to astronomical scientific views, laws and the history of the formation of scientific ideas in training;
- application of xrestomatic materials (biographical essays, inventions and discoveries) on the life, work and scientific heritage of scientists in astronomy lessons;
- the use of tablets on the content of the subjects of physics and astronomy, which are found in works of art and fiction in the course of the lesson;
- to what extent to use popular science literature, maatboot and Internet materials on physics and astronomy;
- Organization of the explanation of astronomical phenomena and processes in the lesson sessions using interesting tools (humor, interesting physics, sketches presented in the books of astronomy;
- to provide students with quality and interesting issues, as well as issues, experiences and assignments prepared on the basis of the content of the subject of study in works of art and fiction;
- regularly organize astronomical observations, circles, excursions;
- high use of interdisciplinary communication in the teaching of astronomy.
It was found that students are important in their understanding of the universality of the laws of the universe and nature, in the formation of broad scientific worldviews , in the stimulation of their positive emotions, in the development of their ability to admire, in upbringing.

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