

Table Of Content

Journal Cover	2
Author[s] Statement	3
Editorial Team	4
Article information	5
Check this article update (crossmark)	5
Check this article impact	5
Cite this article	5
Title page	6
Article Title	6
Author information	6
Abstract	6
Article content	7

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Regional concept for the development of science education in the secondary school of Samarkand region

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Abstract

This concept creates favorable conditions for the development and implementation of mechanisms for the development of school science education in Samarkand region of the Republic of Uzbekistan taking into account the programs developed and implemented at the current stage of development of the region. This approach allows us to strengthen the position with staffing for teachers (biology, chemistry, physics, mathematics) of the secondary school and to achieve the integration of rural and city schools to create a single educational space. It will increase the motivation of students and activate the work of teachers of biology, chemistry, physics, and mathematics, which will lead to the full formation of the initial stage of professional orientation in the natural sciences

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Introduction

Given the role of universities in Uzbekistan in the training of professionals of the highest category, it is necessary to create pedagogical classes on the basis of the secondary school for advanced education with in-depth study of natural science subjects for grades 10-11 in order to increase motivation and better professional orientation. The training of highly professional teachers of natural sciences contributes to the solution of complex state problems in industry, ecology and environmental protection by increasing the level of training for the transition to the introduction of modern technologies, the qualitative growth of labor productivity using high-tech equipment. Most areas of scientific and technical competencies are formed, with a high level of knowledge of the school course of science subjects. Among the forms of support for school science education it is necessary to create specialized classes, the development of which can be regulated by sponsorship, grants, etc. Another form is the systematic organization of special science training in school classes. For some municipalities, the presence on their territory of chemical, petrochemical, engineering or related industries allows you to use the model taking into account the close interaction of school with production. Teachers should also be stepped up to participate in grant programs at various levels.

Main part

By means of resources of universities and institutes, it is necessary to organize training in the organizational and innovative activity of teachers of natural sciences. Unfortunately, the unified policy of support for the school science education in the Republic of Uzbekistan has not been established.

When discussing the concept of science education, it should be noted:

- low level of quality of organization of extracurricular activities;
- weak material and technical base for the implementation of school projects and research;
- insufficient study of the purpose and content of the study of natural science subjects in extracurricular activities programs and circles for grades 4-7.

The opportunities of the teaching course of natural science subjects in the middle classes of the secondary school are not well realized, which is a consequence of insufficient motivation, which has not been formed due to the lack of continuity (grades 4-7), and the pressure of the course of general educational subjects.

The main state goals of the school science education at this stage of development of the general education system in the Republic of Uzbekistan should be considered the formation of school children:- modern ideas about the industrial-technological and related socio-economic development potential of the subjects and regions of the Republic of Uzbekistan, as well as national and regional growth support mechanisms (technological parks, industrial clusters) operating in these territories, aimed at creating an innovative economy in the field of chemical, pharmaceutical, metallurgy, biotechnology, food, oil and gas processing industries;

- the necessary competencies for successful work in the "digital economy" and in digital personal production in the conditions of mastering various professions.

Analyses

School science education's regional tasks to strengthen the motivation to study natural science subjects and build the competencies of specialists in accordance with the development of industry and the economy of the Republic of Uzbekistan include the followings:

- teachers of natural science subjects for secondary schools in urban and rural settlements;
- workers in the natural sciences and specialists in the field of natural sciences;
- specialists in the field of related technologies in the chemical, pharmaceutical, metallurgical, biotechnological, food, oil and gas processing industries;
- specialists in the field of management of products manufactured in the regions, etc.

With this training approach, tasks will be solved and goals achieved, since only good school preparation can ensure the formation of the necessary competencies, no other school subject can replace this. In the medium term, the training of teachers is of paramount importance, since the role of a teacher is important in order to solve all the tasks set. Various attempts at primary and secondary schools to introduce elements of science knowledge through electives and individual subjects will not lead to any success in increasing the motivation for students to study science subjects. Among school children, the opinion has been strengthened that the study of natural objects causes difficulties and is of little use. It's not so

important to study some natural objects, because an insignificant amount of time is allocated to them among the objects of basic general education and this knowledge is not in demand. In the study of electives and individual subjects of natural science, it is necessary to give information on the development of innovative industries, modern materials, nano-biotechnologies.

This kind of information arouses interest in modern courses of natural science subjects and, if you return full hours to subjects in a basic school, taking into account extracurricular activities in grades 4-7 and group work, it is possible to increase the level of school science education in the shortest possible time. To achieve the success of each student, taking into account the foregoing, it is necessary to develop programs of basic general education in the Federal State Educational Standard. In the implementation of school science education, psychological and pedagogical support is of great importance. Such studies form the motivation of students to study natural science subject to future plans for vocational guidance.

Among the forms of support for school science education it is necessary to create specialized classes, the development of which can be regulated by sponsorship, grants, etc. Another form is the systematic organization of special natural science training for school classes.

Such studies form the motivation of students to study natural science subject to future plans for vocational guidance.

Among the factors that increase interest in the study of natural science subjects are regional and territorial principles. Based on this, one should use network forms of interaction with industrial enterprises, clusters and technology parks focused on innovative technologies located in the region and territory.

Discussions

For some municipalities, the presence of chemical, petrochemical, machine-building or related industries on their territory makes it possible to use the model taking into account the close interaction of the school with production. Teachers should also be intensified to participate in grant programs at various levels. By means of resources universities and institutes, it is necessary to organize training in the organizational and innovative activity of teachers of natural sciences. Unfortunately, the unified policy of support for the school science education in the Republic of Uzbekistan has not been established.

When discussing the concept of science education, it should be noted:

- low level of quality of arrangement of extracurricular activities;
- poor material supply and technical base for the implementation of school projects and research;
- insufficient study of the purpose and content of the study of natural science subjects in extracurricular activities programs and circles for grades 4-7.

The opportunities of the teaching course of natural science subjects in the middle classes of the secondary school are not well realized, which is a consequence of insufficient motivation, which has not been formed due to the lack of continuity (grades 4-7), and the pressure of the course of general educational subjects.

The main state goals of the school science education at this stage of development of the general education system in the Republic of Uzbekistan should be considered the formation of school children:

- modern ideas about the industrial-technological and related socio-economic development potential of the subjects and regions of the Republic of Uzbekistan, as well as national and regional growth support mechanisms (technological parks, industrial clusters) operating in these territories, aimed at creating an innovative economy in the field of chemical, pharmaceutical, metallurgy, biotechnology, food, oil and gas and processing industries;- the necessary competencies for successful work in the "digital economy" and in digital personal production in the conditions of mastering various professions. School science education's regional tasks to strengthen the motivation to study natural science subjects and build the competencies of specialists in accordance with the development of industry and the economy of the Republic of Uzbekistan include the following:- teachers of natural science subjects for secondary schools in urban and rural settlements;
- workers in the natural sciences and specialists in the field of natural sciences;
- specialists in the field of related technologies in the chemical, pharmaceutical, metallurgical, biotechnological, food and oil and gas processing industries;- specialists in the field of management of products manufactured in the regions, etc. With this training approach, tasks will be solved and goals achieved, since only good school preparation can ensure the formation of the necessary competencies, no other school subject can replace this.

Various attempts at primary and secondary schools to introduce elements of science knowledge through electives and individual subjects will not lead to any success in increasing the motivation for students to study science subjects. Among school children, the opinion has been strengthened that the study of natural objects causes difficulties and is of little use. It's not so important to study some natural objects, because an insignificant amount of time is allocated to them among the objects of basic general education and this knowledge is not in demand. It is important to take into account the socio-economic level of development of the region and correlate with the intellectual abilities of students. Hence, it becomes possible to conduct various events (tournaments, olympiads, contests) at school and on the premises of enterprises. The development of a professional community can contribute to the successful development of school science education. Such a

community in the form of an association of teachers of biology, chemistry and ecology operates in Moscow region of the Russian Federation. The activities of "Teachers of biology, chemistry and ecology" association cover various aspects of the school science education - from organizational and educational work to methodological assistance to young teachers. Representatives of the association take an active part in the regional competitions "The Teacher of the Year" in chemistry and biology. Conferences, seminars, master classes are held for teachers of chemistry and biology. In 2018, jointly with the Ministry of Education, continuous education courses for chemistry teachers were held, where representatives of the Russian Publishing House textbook were actively involved and well-known methodological teachers from the best pedagogical universities of Russia as well. When developing the courses, a questionnaire was conducted for teachers of natural sciences in Moscow Region, the most vulnerable sections and blocks studied in the school course were discussed with them, and on the basis of these programs a continuing education program for teachers of chemistry and biology was created. To implement this project, as a result of analysis and discussion of the content of the courses, university professors were invited. The "Teachers of biology, chemistry and ecology" association together with the "Small Academy of Moscow Region" conducts subject meetings where students with special interest work with well-known university professors using various forms of interaction. This increases the motivation of students to study natural sciences. If you study the work experience in neighboring countries and use it taking into account the peculiarities in Uzbekistan, good results can be obtained in raising the level of school science education.

Conclusion

Textbooks and teaching aids take an important place in the school science education. It is necessary to naturally come to their unification for the entire region. To do this, a broad discussion and analysis should be conducted on textbooks and teaching materials recommended by the Ministry of Education of the Republic of Uzbekistan, and the most successful ones should be selected with a view to introducing Samarkand region of the Republic of Uzbekistan in the secondary school.

This approach creates the conditions for the successful development of school science education in the region and makes it possible for methodological associations of municipal and city districts to introduce the best practices of teacher-mentors, as well as to control the level of school science education. Together with pedagogical universities to develop master classes on the use of electronic textbooks of natural sciences in the teaching process and to test in advanced schools of the Samarkand region.

This will create competitive conditions for the use of various sources and, importantly, allows you to integrate the classical methods of teaching the subject with innovative technologies (including pedagogical). Given the intellectual abilities of students and the psychological characteristics of perception of adolescence, a combination of classical and innovative teaching methods in the school course of natural sciences will give a synergistic effect. It is important that teachers of natural science subjects master the skill of using various techniques in combination and apply them in the classroom, as well as in extracurricular activities.

The Ministry of Education of the Republic of Uzbekistan needs to create conditions for the use of methods and technologies in the natural science education of pedagogical universities of the Republic, which synchronize their work on the issue of school-university partnership. Popular science lectures by professors, career guidance, methodological assistance to a teacher, accompaniment of young teachers during the first years of work, preparation for olympiads in natural sciences, work with gifted children and various other forms of interaction will contribute to the development of school science education. Among the main plans for strengthening school science education, Samarkand region of the Republic of Uzbekistan is the study of the experience of the advanced regions of the Republic and interaction with representatives of the most successful regions in this matter. Based on the study of the successful experience of the leading regions and as they are introduced into the educational field of Samarkand region, we assume that high results will be achieved in the development of school science education.

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