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Integration of Technology and Natural Sciences in primary classes

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ABSTRACT

This article describes the interdisciplinary relationship between Technology and Natural Sciences in primary education. That is, it explains how Technology and Natural Science enter into an integrative process with each other. Naturally, there are many technical and technological problems in production, and without their elimination, it is impossible to increase production efficiency. This process certainly shows the connection of the natural sciences.

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Boshlang‘ich sinflarda texnologiya va tabiiy fanlar integratsiyasi

Калит сўзлар:
texnologiya,
tabiiy fanlar,
integratsiya,
texnika,
fanlararo bog‘liqlik.

ANNOTATSIYA

Ushbu maqolada boshlang‘ich ta’limda texnologiya va tabiiy fanlarning o‘zaro fanlararo bog‘liqligi ifoda etilgan. Ya’ni texnologiya va tabiiy fanlar o‘zaro qay tartibda bir-biri bilan integrativ jarayonga kirishishi haqida bayon etilgan.

Интеграция технологии и естественных наук в начальных классах

Ключевые слова:
технология,
естественные науки,
интеграция,

АННОТАЦИЯ

В современной статье рассматривается взаимосвязь между технологиями и естественными науками в контексте начального образования. Автор акцентирует внимание на том, как технические инновации и естествознание

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техника, междисциплинарность.

взаимодействуют, создавая синергетический эффект. В современном производстве немало технических и технологических проблем, решение которых напрямую связано с применением знаний из области естественных наук. Такое интегративное взаимодействие не только демонстрирует переплетение дисциплин, но и подчеркивает значимость естественных наук в решении актуальных практических задач.

Introduction.

It is known that bringing up young people, providing them with education, and raising them to be worthy personnel for the future has always been one of the most important tasks of every country. Likewise, if we say that such matters are constantly at the center of attention of our country's leaders, we will be telling the truth.

The Strategy of Actions on five priority directions of the development of the Republic of Uzbekistan, which was adopted under the direct initiative and leadership of the President of our republic Sh.M. Mirziyoyev is consistently implemented, started a new stage of development in our republic. The practical results of this process are evident today in all spheres of our lives, most importantly in the thinking, aspirations, and actions of our people. [1; P. 488.].

Special attention is paid to the issue of improving the education system, which is one of the priority directions of the development of the social sphere, the fourth of the action strategy.

The head of our state in his speeches and talks during his visit to each region, has been emphasizing the need to consider the issues of raising a mature generation and leading young people to live a healthy lifestyle as an urgent issue on the agenda. As the President stated: "If we do not give our children a proper education, if we do not keep an eye on their behavior and mood every day, every minute if we do not teach them science and technology if we do not find a decent job, then we will lose this deposit.

In our country, as it is known, in the essence of the "On Education" and the National Curriculum, the tasks of training highly qualified specialists who can meet the requirements of world standards are set. In particular, the main goal of education is to reform fundamentally the field of education, to free it from the ideological views and prejudices of the past, to create a national system of training qualified personnel that meets high moral and ethical requirements at the level of developed democratic countries. is to create. At the present time, when the reforms in the field of education are being implemented step by step, there is a need to implement the existing conclusions and recommendations on increasing the effectiveness of education based on the requirements of the quality of education. In particular, the training of today's personnel consists of the formation of competitive, active individuals, i.e. specialists, who can adapt to the period of transition to the market economy. This issue is the main task in the teaching of "Technology" as well as other subjects. The content of this task, in our opinion, becomes more clear in interaction with "Natural Sciences".

Materials and methods. For the article, the content of the integration of Technology and Natural Sciences in primary education was researched based on effective methods of teaching (problematic, logical, oral presentation, observation, experimentation).

Results and its discussion. The great thinkers and scholars of the East in their scientific and educational works, poems and ghazals, and literary heritage emphasized and glorified the sanctity and necessity of professional and creative work. Among them, Ahmad al-Farghani, Imam al-Bukhari, Imam al-Tirmizi, Abu Nasr Farabi, Abu Rayhan Beruni, Abu Ali Ibn Sina, Yusuf Khos Hajib, Ahmad Yassavi, Mahmud Kashgari, Mahmud Zamakhshari, Sheikh Najmuddin Kubra, Burkhaniddin Marginani, Mahmud Chagmini, Bakhovuddin Naqshbandi, Abdurahman Jami, Alisher Navoi, Mirzo Ulug'bek and many other scholars expressed creative work, creative work, and profession in their works [11; p. 156].

Regarding the creation of inventions related to new devices, the works of Ahmad al-Farghani (IX century), Abu Rayhan Beruni (IX-X centuries), and Mahmud Chagmini (XII-XIII centuries) should be highlighted. One of Al-Farghani's major works in this field is the book "Kitab fi sa'ha al-asturlob" (Book on Making Asturlob), which is devoted to the making of an astronomical observation instrument, the asturlob presented his ideas for the development of new technical solutions on the example of his recommendations for making data tables, north and south astrolabia.

M. Behbudi, A. Fitrat, H.H. Niyozi, representatives of the new enlightenment movement that appeared in the territory of Central Asia in the second half of the 19th century, implemented heuristic methods of developing the creative abilities of young people for the first time in their new schools. For example, Fitrat emphasizes that intellectual education is carried out through reading and learning, and in this, he distinguishes the intellectually gifted by nature and the professional (perfect) mind that is formed through knowledge.

These issues have been thoroughly studied in many scientific research works. Pedagogical scientists of our country A.I.Vorobyev, K.Davlatov, R.Mavlonova, P.T.Magzumov K.Mirsaidov, N.Muslimov, U.N.Nishonaliyev, M.O.Ochilov, J.Ramizov, N.S.Sayidahmedov, O'.Tolipov, Sh.S.Sharipov, O. Eshonov, A.R. Khodzhaboyev, E.T. Choriyev, N. Shodiyev, O. Koyysinov, O.H. Hayitov, etc., directed young people to the profession, trained teachers, trained future teachers in various fields of practical-pedagogical activity, including problems of effective management of creative activities of students and pupils are highlighted.

It is known that our ancestors paid special attention to their children's education and vocational training. Therefore, every parent has duties towards their children, including giving them a good name, teaching them to read and write, to make them professional, to making them have two heads and a home. Our ancestors have followed this tradition since ancient times. At least they left their craft as a legacy to their descendants. It is because of this that our national traditions, customs, values, and national crafts have been developing for centuries.

Since the independence of our republic, fundamental reforms have been carried out in the education system so that Uzbek boys and girls can be educated in modern educational institutions, using modern technical means, under the hands of qualified specialists.

What is the goal of educational reform? The main goal is that we want to build a great future country called Uzbekistan. The future of our country is in the hands of today's generations. We want the great future of Uzbekistan to be in the hands of highly spiritual, physically healthy, qualified and creative people. We should pay attention to the education system in order to develop people with such qualities. For this purpose, all the laws and

documents under the law being reformed are being implemented in harmony and consistency. According to the types of educational institutions, the State educational standards and educational programs were developed based on these standards. State and non-state educational organizations have been established, educational literature is being created. All this is for our future generations [2; p. 52].

Today, Uzbekistan is developing on a global scale. In order for Uzbekistan to further develop and progress, we need to train qualified personnel. Qualified personnel are educated, resourceful, creative people. Development of such individuals is a guarantee of development of the country and society. Otherwise, they will freeze at some point. Because where there is creativity, there is growth, development, and competition [8; p. 221].

So, what does the education of a creative person depend on? Of course, this issue goes back to the pedagogues, because only an inquisitive, knowledgeable, master of his profession can educate a real specialist. A healthy environment and favorable conditions should be created for students to get a good education. In this regard, several works are being carried out in our country. For example, the perfect renovation of schools, provision of modern equipment, and equipment, creation of modern textbooks, and electronic textbooks are proof of our above ideas. Therefore, it is the duty of the pedagogical staff to train qualified personnel using these facilities.

Today, the reforms carried out in the field of education in our republic aim at a number of tasks in the teaching of all subjects. At the same time, it is obvious that there is a need to carry out a number of practical works to further improve the teaching of "Technology" and "Natural Sciences" classes held in general secondary schools and the work of sending students to the profession. .

It is known that since the independence of our Republic, a number of foreign countries have been investing in our country, joint ventures have been established with a number of foreign countries, foreign machine tools have been imported and installed in a number of industrial enterprises, but this is The lack of qualified personnel with modern knowledge to operate in the field is considered one of the urgent issues of today [9; p. 68]. Vocational orientation issues require paying great attention to improving the teaching of "Technology" subjects in general secondary schools, and through "Natural Sciences" not only professionals of each profession, but also independent ones. can express the education of individuals who can think and work in dependence. Because, on the basis of these sciences, the child understands and helps to understand the connection between nature and life. Taking this into account, it is appropriate to make the issue of education of a person who can think and work independently as the main criterion of "Technology" and "Natural Sciences" classes held in schools.

The main purpose of the subject "Technology" taught in general secondary schools is to inculcate the aspects of technological education in schoolchildren. That is, it consists of a process of mental and physical actions performed by students under the guidance of a technology teacher, and as a result, they acquire knowledge about work tools, tools, and processes, as well as the necessary practical skills to perform production work in a certain field. "An educational subject aimed at developing personal qualities and thinking that allow them to acquire skills and qualifications, consciously choose a profession and participate in labor activities for the welfare of society and the individual [3; 4; 5; 6].

In "Natural Sciences" lessons, the organization of students' practical work, including independent and creative activities, directly depends on the teacher's knowledge and pedagogical skills in this field.

Usually, the concepts related to this are given to students in the course of teaching "Technology Science Teaching Methodology" and "Geography Science Teaching Methodology". That is, the methodology of teaching technology is a generalizing science, in which students are generally taught how to use the forms and methods of organizing technology lessons in schools [7; p. 52]. In this regard, issues of using educational technologies, in particular, interactive methods, and innovative pedagogical technologies in the teaching process, are given special importance in the current textbooks. Based on this, these academic subjects act as an integral part of education in harmony with each other.

Conclusions. It is emphasized that a more effective implementation of an integrated approach in primary grades will increase students' interest in acquiring technology and natural knowledge, and will help to strengthen their skills, qualifications, and competencies. It is necessary to improve integrated education, analyze and design one's own activities, independent research, and develop competencies for positive resolution of professional problem situations in elementary grades.

Thus, based on the above information and analysis, the following conclusions were reached:

1. On the basis of the integration of technology and natural sciences in elementary grades, in the development of students' theoretical knowledge, practical skills, skills, and competencies, in the process of solving problematic situations, interrelated components aimed at the formation of personal intellectual qualities (organizational, activity, content, evaluation, result) was determined by matching.

2. The components of the integrated approach (organizational-active, creative, axiological, cognitive, reflexive-evaluation) and improvement levels of interdisciplinarity (probability, optimal, limited) and effectiveness (speed of self-creative development) were improved.

3. The integration of technology and natural sciences in elementary grades is based on the psychological characteristics of students, didactic principles, i.e. scientificity, coherence, consistency, comprehensibility, theory, and practical unity, and the quality of integrated knowledge based on the teacher's pedagogical skills. and efficiency was ensured.

4. It was emphasized that the more effective integration of technology and natural sciences in primary classes will arouse students' interest in mastering specific and natural knowledge, and will help to strengthen their skills, qualifications, and competencies.

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