The Needs of Interdisciplinary Integration in the Educational System

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ABSTRACT

This article describes the existing problems and tasks in the organization of teaching on the basis of interdisciplinary integration in the educational system. Organizing the educational process on the basis of interdisciplinary integration requires the development of methodological recommendations for each subject of the educational material.

Keywords: Integration, Denaturation, Renaturation, Ingredient, Coagulation

In order to reflect the whole picture of the universe, it is required to take a comprehensive look at it from many disciplines with their keen eyes. According to the artificially distributed object of study, sciences try to illuminate a certain boundary of the process separated from the universe system. Accordingly, wrong ideas and concepts are formed. All sciences have their own role in the process of comprehensive reflection of the original landscape, so-called science and failure to understand the connections between them undermines the perfection of knowledge. With the development of science and technology, their content and boundaries are expanding. But as science experts became more and more specialized, there was a certain distance from the other sciences while gaining in-depth knowledge of the relevant science. Our nightmare experts have already proven that science cannot be studied completely by separating it from one another. The secret of their world-shaking achievements is the integration of perfect sciences.

Abu Rayhan Beruni's masterpieces in the fields of mathematics, physics and chemistry are known to the world and are considered to be "a hotbed of mysteries" and have astonished India. While Ibn Sina was seriously engaged in mathematics, chemistry and biology, at the same time, receiving the title of "Sheikh-Ur-Rais" proves that he was also an accomplished scholar in religious sciences.

He sought solutions not by pitting existing sciences against each other, but by their harmony, be it secular or religious science and our scholars have left enough lessons in this regard.

The example of the productivity of large-scale studies connecting sciences is not limited to the East. The French scientist A.Lavoisier, who reformed chemistry from phlogiston-like confusion, was a strong economist while he was engaged in both chemistry and physics.

Butlerov's scientific researches devoted to the study of butterflies in the field of zoology did not in any way prevent him from founding the "Theory of the Structure of Organic Substances", but helped him realize that the

unique structures of the universe are reflected in the structure of substances in a certain consistency it is not surprising if he gave.

J.Dalton entered the history of science due to the fact that, along with chemistry and physics, he was also seriously involved in biology and medicine.

With his discovery of the law of multiple proportions, he once again proved in practice how closely related the sciences of chemistry and mathematics are. R.Hukdek, the manifestation of physics science, discovered that plants are composed of cells and opened new doors in biology, because he was able to skillfully use the possibilities of physics in the field of biology.

A number of scientists such as M.Lomonosov, D.I.Mendeleev, N.Bor, A.Avogadro, S.Arrhenius, G.Devi and so on, there are still disputes about whether there are many works related to the field of chemistry or physics. During their lives, they did not spend time on such disputes, but armed their thinking with all the necessary sciences.

At a time when science and technology are rapidly developing and economic, political and psychological relations are becoming more complex, approaches to the educational process are also changing somewhat. The transition from informative education based on giving information to education based on logical thinking has become the need of the hour.

Students need a comprehensive database of processes to develop skills based on generalizing and critical approaches. For this purpose, it is not effective to be limited to a single discipline. There are processes about which one cannot have a one-sided opinion. The process of dissolution of matter is taught as a physical phenomenon in the general education system [1]. For example, when sulfuric acid is dissolved in water, its chemical composition and formula do not change. This state means that the process enters the physical process. But in this process, a significant amount of heat is released. The release or absorption of heat is a sign of a chemical process. Information about this is also mentioned in the general education system. So melting is both a chemical and a physical process. There are topics that cannot be clearly defined as belonging to chemistry or physics.

In the study and teaching of topics such as solutions, dissociation theory, electrolysis, gas laws, atomic structure, nuclear reactions, chemical bonding, reaction rates, chemical equilibrium, no results can be achieved without the integral connection of chemistry and physics. Such processes are also encountered during the teaching of other subjects.

In order to master the content of the subject of photosynthesis from the science of biology, we learned that a photon is emitted from chlorophyll and becomes active when sunlight falls on it - through physics, activated particles break down water, energy accumulates in ATF and the hydrogen and carbon dioxide produced form glucose under enzymatic conditions it is required to understand the processes of making - through chemistry.

During breathing, the passage of oxygen to the alveoli through diffusion is explained on the basis of physical knowledge and the binding of oxygen to hemoglobin is explained on the basis of chemical knowledge. To understand the complex physiological connection between nerve fibers and muscle fibers, the synapse, the chemical (acetylcholine generation) processes that occur in them and the physical (current generation) processes that occur in the so-called terminal discs an understanding of the processes is required.

In order to fully understand the nature of processes such as matter and energy exchange, thermoregulation, it is necessary to combine biology, chemistry, physics and mathematics.

Chemical and physical phenomena are always carried out side by side. The reaction begins at the expense of giving off heat. Or, on the contrary, as a result of the reaction, physical processes such as heat release or absorption, pressure volume change, light emission, sound wave generation, and electricity generation are also observed.

A number of physical processes cause chemical phenomena to occur. Our ancestors also used the composition of such interconnected processes very effectively. The

analysis of the process of preparing a single dish can be a proof of this. For the preparation of sumac, which has a long history, wheat grass, which is the source of the enzyme amylase, which acts as a biological catalyst, is first harvested.

Then the main process, the stage of obtaining glucose by thermal and catalytic hydrolysis of starch, begins. The introduction of green juice and its mixture into the sweet taste is explained by the formation of glucose. Along with the sweetness of the food, it is explained by the fact that the salt is in moderation (although no salt is added) and it is evaporated by adding water several times.

As a result, the salts in the water will be enough to normalize the table salt. If the general process is analyzed, threshing wheat grain and extracting greens is a biological process, extracting water by squeezing greens, dissolving enzymes in water, mixing (diffusion), evaporating water is a physical process and obtaining glucose by hydrolyzing starch is a chemical process consists. Or, if you pay attention to the process of making bread, you can witness that there is scientific wisdom in every process and that biological, physical and chemical processes are skillfully combined. Biological processes take place until the wheat grain, which is the generative organ of the plant, matures.

The processes of grain drying, grinding, sifting, and kneading are objects of physics. Yeast fungi are used to multiply the dough. At this time, as a result of a biochemical process, starch turns into glucose, then into alcohol and carbon dioxide. As a result of chemical processes, 1,4,5,6-tetrahydro-2-acetopyridine, an unstable substance that gives a unique smell to freshly baked bread and decomposes in the air after a while, is formed.

In the preparation of dairy products, including yogurt, milk is first boiled thoroughly. In this process, the milk protein undergoes thermal denaturation, forms a film on the surface of the milk and causes the milk to rise. A simple solution to avoid this situation, mixing it up, was invented.

Boiled milk is cooled to a warm state and a little yogurt, which is a source of lactic acid fermenting bacteria, is added to it. After a certain time, the desired product is formed.

Egg white is whipped to prepare in Nishol. As a result of mechanical processing, bonds forming the quaternary and tertiary structure of egg protein are broken and denatured. As a result, the volume of protein increases.

The process of denaturation is a reversible process and after some time, the broken bonds can recover and return to their original state, that is, they can undergo renaturation. In order to prevent this, that is, to leave the whipped egg white in this state, our ancestors used the root of the oleander plant, which contains ingredients that prevent the formation of additional bonds. By adding a decoction of oregano root, whipped egg whites will keep their condition for a long time.

In the process of making molasses, which is tastier and more useful than most of the sweets produced today, knowledge from several areas was used effectively.

Grape or mulberry juice is taken and cooled to remove the turbidity. In order to speed up the fermentation process, yellow soil is added to the juice. Small additional particles added to the soil particles and quickly settled down. After the coagulation process was easily carried out, the clear juice was boiled and condensed.

It can be seen that since ancient times, people have been able to connect the knowledge of several sciences and existing life problems and effectively use them in practice.

Ensuring interdisciplinarity and coherence in the formation of the scientific worldview is one of the urgent issues of today. As a result of the systematic implementation of interdisciplinary connections, the consistency of the educational process increases significantly. Students develop dialectical thinking skills. In addition, it is an important condition for the development of knowledge and interest in academic subjects.

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