

## Pedagogical basis of interdisciplinary communication in the educational process

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**Abstract-** *The article describes the content of the development of creativity in the formation of ecological concepts in primary school science lessons, the combination of teaching methods, forms and means, improving their ecological culture through the organization of lessons, the formation of feelings of natural beauty, feelings of conservation and personal life.*

**Keywords:** *primary education, environmental awareness, integration, lesson, form, methods, tools, problem, scientific and creative activity.*

### 1. INTRODUCTION

Integrated sciences, which form the basis for the development of knowledge about nature and society in the world, are included in the curricula of many countries. This suggests that integrated sciences, especially those with a focus on the natural sciences, are a key tool in shaping students' responsibility for the environment in the global community. Therefore, the issues of harmonization of nature-society relations, the establishment of serious interdisciplinary relations with the environment in the curricula and programs of secondary schools of our country are of great importance.

Integration is the convergence and interdependence of sciences throughout the differential process. The process of integration is a new, high-quality interconnection between the sciences, which manifests itself in a high way. It should be noted that the foundations of the integration process are based on folk pedagogy and scientific pedagogy of the distant past.

### 2. LITERATURE REVIEW

Integration is an interdisciplinary connection. The foundations of interdisciplinary coherence arose from the need to show and explain nature in its

entirety in textbooks. Opinions of great educators in the study of the integration process:

The great didactic Jan Amos Comenius states: "Everything that is connected with each other must be studied in the same way.

The idea of interdisciplinary connection was later approached by many educators, who contributed to its development and generalization.

According to Locke, "In determining the content of education, one subject must be supplemented by elements and facts of other disciplines."

I.V. Pestalossi elaborates on the issue of interdependence in textbooks: "He cites interdependent sciences and understands that they are in a state of organic interdependence in nature. Pestalossi argues that the distance of one science from another is even dangerous.

On the psycho-pedagogical nature and psychological-pedagogical connection of didactic influence in the pedagogy of the past, KDUshensky says: "The knowledge and ideas communicated by any science should be given to the world and life in a broad and enlightened way."

K.D.Ushensky had a great influence on the development of the theory of interdisciplinary connection. HV Stoyunin, NF Bunakov, VI Vodovozov and other teachers also worked effectively in the development of the methodology. The importance of interdisciplinary connections or integration in teaching and learning in schools has been discussed by many pedagogical scholars. In particular, in the views of I.D. Zverev, interdisciplinary communication develops students' thinking skills, increases their independence. It also develops their interest in science as well as forms work skills and competencies and is a great help in fostering an environmental culture.

I.T.Suravegina has studied the activation of the process of teaching biology through the use of interdisciplinary links in biology lessons, increasing

students' interest in biology and other sciences. From a scientist's point of view, it's hard to imagine teaching biology without linking it to other academic disciplines. He argues that the establishment of interdisciplinary connections and their skillful use serve to form a system of students' knowledge of nature.

Biologist-Methodist scientists N.M. Verzilin and V.M. Korsunskaya showed that interdisciplinary connections can be of two types: horizontal and vertical. Scholars have noted that horizontal interdisciplinary connections are made between subjects taught in one class, a quarter, and a semester, while vertical interdisciplinary connections are made using knowledge learned in previous classes.

Indeed, a number of research papers have been devoted to the problem of interdisciplinary and intradisciplinary connections in primary schools, focusing on the gradual creation and establishment of textbook integration. In particular, T.L.Ramzaev, G.N.Akvilev, N.Ya.Vinelkin, G.V.Beltyukov and others.

### 3. RESULTS

The goal of integrating education has emerged as an important principle to ensure the full development of the individual. Education for integration has become a key factor in the intellectual and cultural development of the individual. According to French scientist Dj.Due, "At the same time, changes are beginning to take place in education aimed at shifting its center of gravity. These changes are very similar to the revolution in Copernicus in science that shifted the center of the universe from the earth to the Sun. In our example, children (students) become like the Sun, and around it the means of education go in and out like butterflies. Children are the center of the tools that are being formed around them."

Later, centralized sciences emerged as topics that expanded the child's consciousness. As a child grows up, his worldview expands, concepts such as family, school, district, city, country, humanity, universe begin to appear in his mind, and the level of knowledge also increases.

In the early twentieth century, several interesting works in the field of pedagogy were carried out on the way of integration of knowledge. Progress has been made in this direction, especially in the field of primary education.

It provides for two main disciplines in primary schools:

- ✚ Natural science.
- ✚ Mother tongue.

These sciences allow children to become familiar with the environment, people, society, and their roles. The deep and wide connection between the natural sciences and the humanities, the natural sciences and the mother tongue, is noted. These disciplines are the main ones that follow the path of integration in the field of education. Effective work has been done on the integration of teaching materials, strengthening interdisciplinary links and school reform.

In particular, special attention is being paid to the problem of integration. By integration in secondary schools, we mean new pedagogical research, creative growth in the pedagogical team, the ability to apply convenient methods of inculcating in the minds of students. The following should be taken into account when teaching through the integration of disciplines:

- ✚ Each lesson should be goal-oriented;
- ✚ The selected additional material on interdisciplinary connection must be connected with the subject;
- ✚ It is possible to identify ways to work with students in order to increase their activity;
- ✚ The lesson should be not only educational, but also aimed at educating students in the humanities;
- ✚ Based on the content of the topic, scientific knowledge about nature, society, human thinking, development, should be aimed at forming confidence and faith in the future of the Republic;

In general, the integration lesson should be consistent.

The problems of integration of teaching and education in primary schools are theoretically and practically very important from a modern point of view and become more relevant in the light of new social requirements. Today, due to the development of science and huge changes in production, the demands are putting new challenges on school education. The modern education system is aimed at laying the foundations of science at a high level, developing thinking, understanding and imagining the world as a whole, correctly understanding the events around us, educating young people who understand their essence.

The foundation of a serious relationship with the environment is taught in the primary grades. Therefore, new psychological-pedagogical research related to the outcome of economic education in the

first stage of school education allows us to review previous notions about the limited cognitive activities of young school students. This lays the foundation for mastering and updating all components of economic education in the primary grades.

A key issue for such an update is to identify a goal that meets the age characteristics of the primary school students and meets the course requirements.

In the XIX-XX centuries in pedagogical research work was carried out on the creation of an integrated course of acquaintance of primary school students with the natural environment. In particular, these works are associated with the names of A.Y. Gerd, D.N. Kaygorodov, A.P. Pavlov, V.N. Maksimova, S.P. Baranova, M.N. Skatkin. recommended the introduction of an undivided course on inanimate nature.

#### 4. DISCUSSION

A number of works are devoted to interdisciplinary and intra-subject relations in primary education. These problems are the immediate development zone of the transition to the integration of academic disciplines.

The process of mastering the content of these areas of education and the knowledge, skills, knowledge and application of the acquired knowledge, skills and abilities have not been studied theoretically and practically.

The integration of primary school subjects is poorly developed and contradictory. There is a lot of controversy among scholars about the nature of these relationships.

Integration is derived from the Latin *integratio* - restore, replenish, integer - the whole word. There are two concepts in this regard:

1. A system is a concept that expresses the state of interdependence of individual stratified parts and functions of the organism and the process leading to this state.

2. The process of convergence of disciplines, which is carried out in conjunction with the process of stratification.

During integration, the volume of interdependence increases and is regulated, which regulates the performance of the system components and the object of study. How can these general rules be applied in school education? According to modern didactics and methodology, the success of teaching and educating students depends on the formation of their understanding of world unity, the need to conduct their

activities on the basis of general laws of nature, to solve interdisciplinary and intradisciplinary links in science. Integration in education is considered through a systematic approach to the design of the content of academic disciplines.

There are different levels of integration:

- combining elementary, elementary knowledge of nature;

- Integration of intermediate - division of disciplines;

- final - the integration of the final stage of education associated with the study of natural sciences.

The simplest of the connections that make up the simplest knowledge of nature or science is a local imagination bounded by a particular place or concept. This connection is separate from other knowledge and therefore provides the simplest mental activity. This is typical of a small school age. The cross-sections that belong to any system are the simplest structural cross-sections. They are formed on the basis of the study of any subject, science, or phenomenon.

#### 5. CONCLUSION

Knowledge of any science is achieved through the recognition of new facts and concepts by comparing them with the same knowledge. The simplest generalization of knowledge occurs, but it would be just as useful if the knowledge gained was linked to knowledge that was all close to it.

This results in students' analytical and generalization activities. Intuition within the system ensures that students know the whole system of sciences, there is a wide use of knowledge within the studied discipline. The cross-sections within the system reflect time, environment, and numerical relationships. Interdisciplinary perceptions are the highest stage of mental activity. They combine different systems of knowledge, allowing us to know the diversity of an event or process. Based on this knowledge, general concepts emerge. The formation of intersystem concepts allows them to use knowledge, to subordinate them to each other, to identify gaps in the boundaries of knowledge.

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