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FUNCTIONS AND CLASSIFICATION INTER-SUBJECT RELATIONS

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ABSTRACT

This article discusses the need to implement interdisciplinary connections in the educational process, as well as reveals the essence and content of the function and classification of interdisciplinary connections in teaching school subjects.

Keywords: the process of education, learning, interdisciplinary connections, functions of interdisciplinary connections, classification of interdisciplinary connections

INTRODUCTION

The current intensive process of differentiation of the secondary school requires the development and implementation of new forms of education aimed at implementing modern trends in the integration and interpenetration of sciences in the school curriculum. When solving this problem in the context of the traditionally established subject system for studying the foundations of sciences at school, a large role is assigned to interdisciplinary connections [1].

Comprehensive study of the problem of intersubject communications is of fundamental importance both for the development of scientific, theoretical foundations of pedagogy, and for the practical activities of teachers.

Interdisciplinary connections are one of the specific forms of the general methodological principle of consistency, which forms a special type of mental activity - systemic thinking.

Establishment and assimilation by students of connections between individual elements of knowledge and skills from various subjects contribute to the formation of a systematic knowledge, dynamism thinking, creative ways of cognitive activity and value orientations of the student.

THEORETICAL BASIS AND DISCUSSION

School disciplines - physics, chemistry and biologists - are interconnected, and their interconnections are due to common objects of knowledge (bodies, processes, patterns in living and inanimate nature) and general methods of scientific knowledge (theoretical, experimental, mathematical).

Interdisciplinary communications should fulfill educational, educational, developmental and methodological functions [2-4]:

Educational - the formation of a general system of knowledge about the world among students, reflecting the relationship of various forms of the movement of matter.

Educational - the formation of a system of knowledge and the foundations of a scientific worldview.

Developing - the development of a comprehensively harmoniously developed personality of the student.

Based on the commonality of the structure of educational subjects and the structure of the learning process, which are the objective bases for the classification of interdisciplinary relationships, we can distinguish three their main types: content-information, operational - activity and organizational-methodical.

Content-information links differ:

1) The composition of scientific knowledge (fact - logical, conceptual, theoretical).

2) Knowledge about cognition (philosophical, historical and scientific, that is, gnostic, semiotic, logical).

3) Knowledge about value orientations (ideological, that is, dialectical-materialistic, ideological-political, political-economic, ethical, aesthetic, legal).

The need to single out and implement a special type of operational -activity relations is due to the very structure of the educational subject, which contains, in addition to content and procedural elements that determine the cognitive and other activities of students in the learning process [5,6].

The types of intersubject communications of the operational -activity type differ according to the following criteria:

1) Methods of practical activity in the application of theoretical knowledge, that is, "practical", which contribute to the development of students' motor, labor, constructive-technical, calculation and measurement, computational, experimental, visual, speech skills;

2) Methods of educational and cognitive activity in “acquiring” new knowledge, that is, “cognitive”, which form general educational generalized skills of mental, creative, educational, organizational and cognitive (planning, organization and self-control), self-educational activity;

3) Methods of value-oriented activity, that is, "value-oriented", necessary for developing the skills of evaluative, communicative, artistic and aesthetic activity, which is of great importance in shaping the student's worldview.

Organizational and methodological connections differ:

1) Ways of mastering various types of knowledge (reproductive, search, creative);

2) Breadth of implementation (inter-course, intra -cycle , inter -cycle);

3) The time of implementation (successive, concomitant, promising);

4) The way of interconnection of objects (unilateral, bilateral, multilateral);

5) Constancy of implementation (episodic, permanent, systematic);

6) The level of organization of the educational process (by lesson, thematic, etc.);

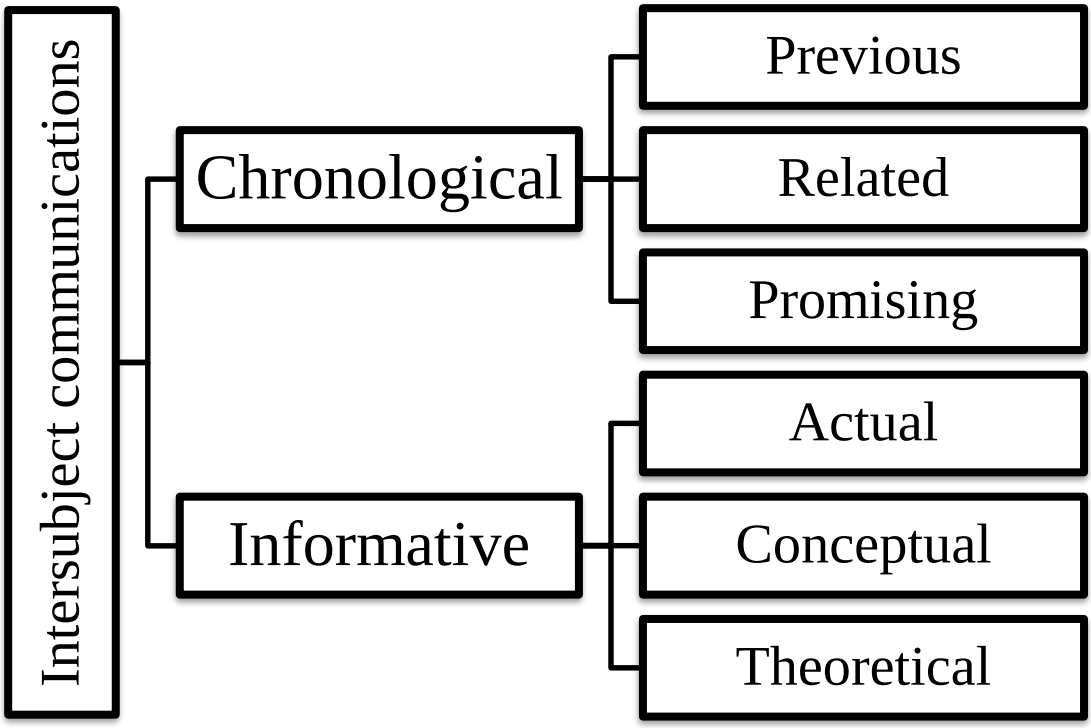
7) Forms of organizing the work of students and teachers (individual, group, collective).

Intersubject communications are classified according to different bases. They are mainly divided into groups according to temporal and informational characteristics. Therefore, chronological and meaningful interdisciplinary connections are distinguished (Pic. 1).

Chronological interdisciplinary connections on a temporary basis are classified into previous, concomitant and prospective.

Antecedent connections are connections between a physics course and material previously studied in other subjects. For example, in the process of studying hydro- and aerostatics in the course of physics, connections are established with the material studied earlier in the courses of natural history and geography (communicating vessels, locks, aeronautics, atmosphere, atmospheric pressure, etc.).

Related connections are connections between concepts, laws, theories, simultaneously studied in different academic subjects. For example, the connections of physics and chemistry courses in the formation of concepts about the atom and its characteristics, the connections of physics and mathematics courses in the study of the concept of harmonic oscillation are related. These questions are studied in different academic disciplines in parallel.



Pic. 1. Scheme of classification of interdisciplinary connections

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Prospective connections are those connections in which the material of the course of physics is the basis for the study of other subjects. For example, the concepts of matter, space, time, motion, interaction are considered first in the course of physics, and then generalized in the course of social science.

Based on the content of the educational material, meaningful interdisciplinary connections are classified into factual, conceptual and theoretical.

Factual links - links at the level of facts. For example, the fact of fragmentation of matter is studied in physics and chemistry, the motion of planets - in physics and astronomy.

Conceptual connections - connections at the level of concepts. For example, the concepts of atom, molecule, ion, etc. are common to physics and chemistry, the concept of a vector, derivative,

integral, etc. is common to physics and mathematics, and matter, motion, space, time, and others

Theoretical connections - connections at the level of laws and theories. Examples are the molecular-kinetic theory of the structure of matter in physics and chemistry, classical mechanics and the laws of motion of bodies in physics and astronomy, etc.

CONCLUSION

In recent years, much attention has been paid to interdisciplinary connections at the level of interscientific generalizations or generalizations at the level of general scientific methodological principles, such as the principle of correspondence, complementarity, causality, symmetry.

The implementation of interdisciplinary connections at this level contributes to the development of students' ideas about the unity of the material world and scientific knowledge about it, allows the use of modern scientific methodology to solve various problems.

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