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## SPECIFIC ASPECTS OF MODULAR EDUCATIONAL TECHNOLOGY

**Abstract:** This article discusses the unique aspects of modular educational technology. The advantages of modular training are justified.

**Key words:** modular education, trainings, educational technologies, information technologies

The term "module" came to pedagogy from computer science, where it denotes a design applied to various information systems and structures and providing them with flexibility and restructuring. The term "module" is international. The UNESCO thesaurus has several derivatives of it: modular method, modular training, modular timetable, modular approach.

Modular training, the general provisions of which were formulated in the late 60s. 20th century in the USA, emerged as an alternative to traditional education, integrating many progressive ideas accumulated in pedagogical theory and practice. At the present stage, modular learning is one of the most holistic and systematic approaches to the learning process, providing a highly effective implementation of the didactic process. According to the authors of, the technology of modular learning is an innovative type of learning based on an activity approach and the principle of consciousness (the learning program and one's own learning trajectory are realized), characterized by a closed type of control due to the modular program and modules.

N.V. Bordovskaya and A.A. Rean note that the technology of modular learning involves such an organization of the process in which the teacher and students work with educational information presented in the form of modules. Each module has completeness and relative independence. The totality of such

modules makes up a single whole when disclosing an educational topic or an entire academic discipline. For example, the target module gives the first idea about new objects, phenomena or events. The second information module is a system of necessary information in the form of sections, paragraphs of a book, a computer program. The third operational module includes the entire list of practical tasks, exercises and questions for independent work on the use of the information received. The last module for checking the results of assimilation of new educational information can be represented by a system of questions for credits, exams, tests and creative tasks.

Modular education is designed for a large independent work of students with a dosed assimilation of educational information recorded in the modules. Sometimes this type of training is called block-modular, considering that each module is formed by dividing the curriculum into blocks. D.V. Chernilevsky refers to the distinctive features of modular learning technology:

mandatory study of each component of the didactic system and its visual illustration in the modular program and modules;

a clear structuring of the content of training, a consistent presentation of theoretical material, the provision of the educational process with didactic materials and a system for monitoring the assimilation of knowledge, allowing you to adjust the learning process;

variability of learning, adaptation of the educational process to the individual capabilities and needs of students.

The purpose of modular learning technology is to create the most favorable conditions for the development of the student's personality by providing flexible learning content, adapting the didactic system to the individual capabilities, needs and level of basic training of the student through the organization of educational and cognitive activities according to an individual curriculum.

The essence of the technology of modular education consists in the relatively independent work of the student in mastering an individual program consisting of separate modules (modular units), each of which has certain activity didactic goals. The achievement of goals is ensured by a specific dose of the content of the educational material, the assimilation of the material is diagnosed by specific tasks.

The modular program implements a complex didactic goal, which includes integrating didactic goals, the achievement of each of which is provided by a specific module. A module is a logically completed form of a part of the content of an academic discipline, including cognitive and developmental aspects, the assimilation of which must be completed by an appropriate form of control of knowledge, skills and abilities formed as a result of mastering a particular module by students.

The module contains cognitive and developmental characteristics, in connection with which we can talk about the cognitive (information) and educational (activity) parts of the module.

Modular learning technology is one of the areas of individualized learning. The module itself can present the content of the course in three levels: complete, reduced and in-depth.

The program material is presented simultaneously in all possible codes: pictorial, numerical, symbolic and verbal.

The module consists of the following components:

precisely formulated educational goal (target program);

information bank: the actual educational material in the form of training programs;

methodological guidance for achieving goals;

practical exercises on the formation of the necessary skills;

control work, which strictly corresponds to the goals set in this module.

The system for monitoring and evaluating educational achievements is a rating system: the accumulation of a rating occurs in the process of current, intermediate and final control.

It should be noted that the modules make it possible to transfer learning to a subject-subject basis, individualize work with individual students, dose individual assistance, change the forms of communication between the teacher and the student.

The didactic system of the learning module is predicted, designed and implemented on the basis of general and specific scientific principles. When designing a modular program, the following general principles should be considered:

layout of the content of the educational process around the basic concepts and methods;

systematic and logical sequence of presentation of educational material; integrity and practical significance of the content; clarity of presentation of educational material.

So, in accordance with the principle of modularity, training should be built on separate modules as the main means of assimilation by students of educational information about the intended professional activity. The allocation of modules occurs in accordance with the content of the activities of specialists, and the assimilation of knowledge, skills and abilities is built through a system of actions. The principle of structuring requires the division of the educational material of the module into structural elements-steps, each of which has a specific didactic goal, and the content of the training is presented in a volume that ensures its achievement. The principle of dynamism ensures the variability of modular programs, changing them taking into account the dynamics of the professions in demand and the professional specialization of students. The principle of flexibility determines the construction of modular programs in such a way that they easily adapt to changing scientific, technical and socio-economic

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conditions, to individual laws and levels of student training. The principle of parity implies subject-subject relations between the teacher and the student. The principle of implementing feedback contributes to the creation of a system of control and self-control, correction and evaluation of the success of studying the educational material of the module. The principle of conscious perspective emphasizes that the condition for the success of training is the formed professional motivation for learning, awareness of its near and long-term prospects.

Based on these approaches, various concepts of training specialists are being developed, in which the learning process, either as a whole or within a specific subject (subjects), is focused on the consistent assimilation by students of the elements of professional activity and the content of a modular educational program.

In the developed concepts of training specialists, modular educational programs have a different composition and structural construction. In documents, they can be presented in various forms, but three main components must be included: a targeted content program, an information bank, methodological guides for students.

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