

THE USE OF MODULAR TECHNOLOGY IN EDUCATION

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Abstract

The article discusses the issues of modular training, the purpose, principles and stages of creating a training module, the sequential analysis of training material, identification of identification goals, the development of didactic material and the experimental verification of planning and compliance of the achieved results with the goals set in the module, as well as the problems that teachers face during the preparation of the training module, recommendations were developed.

Key words: module, modular technologies, pedagogical design, technological map, goal identification, training module.

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INTRODUCTION

Modular education is one of the promising pedagogical technologies that provides a good way to individualize curricula and master them, depending on the abilities and interests of each student. In the process of modular teaching, a pedagogical system is implemented, which is associated with a clear algorithmization of the learning process. This approach allows to reduce the number of lectures, the main emphasis is on the student's independent activity, independent learning. An important feature of modular programs is that they are focused on the individual student, the student acts as an active subject of educational activities. The advantages and opportunities of modular technologies are reflected in the implementation of important features of person-centered education.

As the learning process is organized on the basis of a modular program, the educator acquires the status of a consultant and helps the learner to master the methods of learning and self-management in their independent activities. The educator will have a real opportunity to take an individual approach to each learner, organizing the interaction and mutual support of the learners. In this way, favorable spiritual, psychological and didactic conditions are created for the development of the learner.

The development of modular education as a pedagogical technology has a long history. In 1869, Harvard University introduced a curriculum that allowed students to choose their respective subjects. In 1896, the first laboratory school was founded at the University of Chicago, founded by the famous American philosopher and teacher J. Dewey.

Modular education in its modern form is taught by American teachers S. Russell and S. Postlethwaite suggested. The basis of this pedagogical technology were autonomous components called "micro courses". A distinctive feature of 'micro courses' is that they were able to freely integrate with each other within one or more training programs. Determining the components of these teaching materials depended on the specific didactic tasks set by the teacher [4, 6, 9, 10, 11, 12].

The main goal of modular training is to create flexible learning structures that meet the existing needs of the individual and form a new direction of interests, guarantee the results.

Another goal of modular learning technology is to create conditions for students to fully master and select the content of educational programs in different sequences, sizes and speeds through separate and independent learning modules, taking into

account the individual interests and capabilities of the subjects of the educational process. A.E.Tixonova, T.I. Didenko, P.A. Yutsyavichene notes in his research the principles of modular teaching:

- the principle of modularity;
- determining the result, guaranteeing, working on errors;
- ensure dynamic movement of the student;
- development of a system of consultations;
- the principle of flexibility;
- activation of students;
- save time;
- structuring, quantization of information content [4, 10].

A learning module is a relatively independent part of a curriculum that consists of components that have a logical connection. The essence of the training module is explained in the following elements:

- the content of the training course;
- learning objectives;
- expected results (knowledge, skills, competencies);
- technological "equipment" and methodological assistance in the process of its development;
- organizational forms and types of activities necessary for the organization of the process of its development;
- types and forms of control, specific features and criteria for evaluating the results of its development.

Advantages of modular training: obvious efficiency; individualization of teaching; shaping the learning process based on the individual needs of the student; adaptation of educational material to individual abilities and pedagogical goals; a uniform distribution of workload; assessment of knowledge on the results of the work performed (a certain number of opinions that exclude the subjective attitude of the teacher); reduction of training time; distance learning opportunities. In conclusion from the above considerations, it should be noted that modular technologies are one of the approaches that meet the demands of today's students and social development in education [1, 2, 8].

MATERIALS AND METHODS

Each module consists of two parts - cognitive and educational-professional. The first is aimed at the formation of general theoretical knowledge, the second - the formation of professional knowledge, skills and competencies based on the acquired knowledge. To effectively solve the problems associated with the study of this module, it is necessary to achieve the harmony and

correct ratio of its theoretical and practical parts. To ensure this condition requires high professionalism and pedagogical skills from the teacher.

The preparation of the modules involves four steps:

1. Methodological analysis of educational material. The highest cost of time in the teacher's activity requires the analysis, selection of teaching material on the topic, as well as didactic and methodological processing of teaching material in preparation for the lesson.

The tasks of methodological analysis of the study material are to identify and overcome difficulties in understanding and mastering new knowledge and skills by students. The purpose of the methodological analysis is to determine the teaching method, and form, aimed at identifying the difficulties of understanding and assimilating the selected content of the teaching material.

The order and sequence of methodological analysis of the study material consists of the following stages:

- selection of educational material;
- structural and logical analysis of educational material;
- methodological reduction of teaching materials;
- determine the content of students' educational activities;
- selection of teaching aids, methods and forms;
- identification of learning and cognitive activities.

2. Set goals, shape planned learning outcomes, and evaluate opportunities to achieve goals.

The method of setting goals that pedagogical technology offers is of great importance. This is because learning objectives are shaped by the learning outcomes expressed in the students' actions and the outcomes determined by the teacher or other professional. Goal setting is an opportunity to look to the future, to determine what to focus your strength and energy on. The identified goals should be easy to diagnose and determine the level of the learner. In addition, the correct allocation of diagnostic time is required as each identified target needs to be checked separately.

3. Development of didactic materials at the modular level, designing the activities of teachers based on the capabilities of students.

Designing a pedagogical activity is a creative activity of a teacher consisting of a set of practical skills. Design of pedagogical activity means the preliminary development of the main details of the future activities of teachers and students and the prediction of its results. The purpose of designing pedagogical activity is to create a pedagogical process that best meets the goals of education, upbringing, development. The pedagogical process is a set of factors that contribute to the development of students and teachers in direct interaction and are subject to didactic principles.

Stages and forms of designing pedagogical activity. Design is the process of bringing a created model to the level of practical use. Forms of designing pedagogical activity include: working curricula, working curricula, calendar-thematic (prospective-thematic) plans, lesson plans, plans of educational work, etc.

In designing the pedagogical process, the teacher can use different forms of creative activity. This technology will be successful if it uses a specific algorithm of actions and a set of methods that logically complement each other. How effective this technology is is reflected in the results achieved.

4. Experimental verification of the modular program to determine the conformity of the obtained results to the planned results and the correction of the composition of individual modules.

It is recommended to follow the following requirements when preparing a modular program and organizing lessons in the framework of modular training:

- clear and concise module name;
- description of the competencies formed as a result of studying the module;

- Inclusion in the module of "access" control, which allows to determine the formation of competence at the selected levels;
- identify ways to update personal experience;
- identify ways to discuss and analyze the updated experience;
- identify the theoretical knowledge necessary for the development of competence and justify their form;
- identify ways to apply "personal experience" to apply and integrate new experience, practical tasks;
- Introduce an "exit" test to check the level of formation of competencies.

For the successful implementation of modular technology, special attention should be paid to the variability of information content, the selection of the necessary conditions and speed of work with information. In addition, it is necessary to use different forms of interaction between the participants of the learning process and to rely on the independent activity of learners. The modular education system emphasizes the independent activity of the student. Students study the topic independently, the teacher coordinates and monitors its activities, organizes the learning process, advises and motivates the student. New information is developed in the form of small logical blocks, and the learner is required to perceive information from simple to complex.

RESULTS AND DISCUSSION

The results of the study showed that the creation of the module requires a separate approach. Information materials should be based on facts, with brief, convincing and comprehensible examples, as well as divided into logical blocks. The process of creating a learning module is complex and requires the following functions to be performed sequentially:

1. Careful study of the study material and the separation of the main ideas, their systematization and development of a logical structure of information.
2. Forming an integrated goal for students that shows what the student needs to learn, know, understand, identify, analyze, and conclude at the end of the lesson.
3. Determine the content, scope and sequence of activities of the learning elements and determine the time allotted to each of them.
4. Development of additional materials, relevant visual aids, assignments, tests, control questions.
5. Development of a manual for students to work independently.
6. Development of a technological map.

When we studied the level of training of teachers on these five elements, we noticed the following shortcomings:

Teachers can work on the text of the information, organize it, but have difficulty in developing the logical structure of the information.

At the end of the lesson, they develop control questions and tests that need to be completed, but make a few mistakes in developing the defined objectives.

It was found that teachers do not have sufficient skills to create methodological guidelines and manuals aimed at organizing independent work.

The outcome of modular training depends not only on the level of training of the teacher, but also on the level of mastery of the student, the level of practical skills and abilities. For this reason, in the process of creating a module project, the teacher must take into account the existing abilities of students for learning activities and pay special attention to their development, because modular education is based on the individual independent activity of students.

Creating a learning module requires constant research, hard work and pedagogical experience. Research shows that young teachers do not have the skills to develop training modules. In the modules created by them, there are many shortcomings, such as unsuccessful selection of material in the blocks, weak logical communication between the blocks, inefficient use of time, improper organization of independent activities of students.

CONCLUSION

It should be noted that modular technology is an approach that meets today's requirements, and it is advisable to introduce it into educational practice, but taking into account the fact that modular technology requires a lot of work and separate training of teachers and students. If the teacher needs to have the knowledge, skills and abilities to create modular technologies, the student must be ready to learn on the basis of these modular technologies, to plan their learning process, to work independently.

Based on the above, we believe that in the process of training future teachers, it is necessary to pay attention to the following:

1. In the process of training future teachers, more attention should be paid to the in-depth study of knowledge on modular technologies, as well as the development of practical skills and competencies in the development of modules.
2. It is necessary to develop the skills of didactic processing of educational material and identification of goals.
3. Development of skills for the development of technological maps, with an emphasis on the content of education, methods and techniques of educational activities, as well as the creation of a system of teaching aids.
4. Formation of practical skills and abilities for effective organization of independent work of students.
5. Given that the development of modular technologies requires a lot of time and effort, it is necessary to develop mechanisms of the incentive system based on the results achieved on the basis of the created module.

These situations, which will be given more attention in the educational process, will serve as a basis for our teachers to be effective teachers in the future.

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