MODULAR TECHNOLOGY OF FORMATION OF KNOWLEDGE AND SKILLS FROM SPECIALIZED SUBJECTS IN FUTURE TEACHERS OF PROFESSIONAL EDUCATION

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Abstract

In this article studied the advantages and implementation stages of modular educational technology in the training of professional education teachers. The difference of modular teaching from other teaching technologies is as follows: educational content is presented in the form of complete, independent modules; the teacher's communication with the student is carried out on a new basis.

Keywords: pedagogical technology, module, algorithm, modular teaching, modeling, design, construction.

Introduction

It is known that any pedagogical technology is based on the educational principles that form the new content of education, and should be directed to the formation of professional skills in the education of the student's personality. In the center of pedagogical technology is the person who leads the educational process and the subject of this process. At the same time, there is a student who is considered an object. Therefore, mutual communication between these two persons, their influence on each other, as well as the cooperation that occurs as a result of effective activity, should be organized on the basis of high requirements.

In contrast to the methodical development of the educational process, which is aimed at the active and effective functioning of the teacher, the pedagogical technology of education is aimed at the learner, taking into account their personal and joint activities with the teacher, aimed at mastering the educational material. The central problem of pedagogical technology is one of the technologies that ensure the achievement of the educational goal through the formation and development of the student's personality is modular teaching technology.

A module is a fundamental concept of a science, a certain phenomenon or law, a section of a certain topic or a group of related concepts. A module is a unit of educational material that is logically completed, built on the basis of established principles and focused on the study of one or more fundamental concepts of the subject of study.

The module is built on the basis of an algorithm (algorithm-pedagogical technology refers to the predetermined order of mutual arrangement of modules and the sequence of implementation of pedagogical technology processes) and consists of the following components: objective, theoretical, practical, methodological and control.

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The essence of modular teaching is that the learner can independently work with a program of action goals presented to him, an information bank, a special program that includes methodological instructions to achieve the set didactic goals, and the relationship between the teacher and the student during the learning process is a subject-subject dialogue. and the role of the teacher is to inform, monitor and evaluate.

Each education is based on the following principles:

1. The principle of modularity - it is built on the basis of modules designed to achieve specific didactic goals.

2. The principle of variability - the sections of the variable parts of the educational material are independent from each other, which allows to quickly change the educational material.

3. The principle of the structure of the educational content - the educational material is considered not as a whole, but as a material consisting of a certain structure that includes interrelated elements.

4. The principle of methodological counseling - requires ensuring the professional level of learning of teaching activities by students.

5. The principle of foresight – requires students to understand and understand the immediate, intermediate and separate modules.

6. The principle of activity - the formation of different forms and styles of activity in students is envisaged.

7. The principle of equality of parties - equality of parties in modular teaching implies joint action, that is, the subject-subject relationship of the teacher and students.

The adaptability and variability of the educational module system has become especially relevant in the current period, because in the conditions of the market economy, constant qualitative and quantitative changes of the workplace are observed. The essence of the modular system of training for professions is to master the modules of educational units of students one after the other. In this case, the learner can work independently with the program presented to him. The learner sets a specific goal for himself, the information technology base and methodical instructions for achieving didactic goals.

The modular system of vocational training was recommended by the International Labor Organization as the most convenient of all existing pedagogical systems. It can be used for traditional and distance education of students, retraining of specialists in post-university education. This system of training easily incorporates group and individual training forms in short and long-term training systems and can be implemented with or without technical and electronic learning tools. Its essence is that the learner can work independently with the individual curriculum, which is offered to him and includes the targeted program of actions, a bank of information and methodical guides for achieving the didactic goals set before him. In this case, the teacher's duties may change from providing information and control to a consultant-coordinator. As practice shows, the important features of modular teaching technology are: free choice of the place, time and pace of teaching; convenience in curricula and plans; student's own choice of teaching methods and tools; the small size of the module

provides immediate monitoring and correction of the level of acquisition of knowledge and skills.

There are several approaches to defining a module. In the professional training of specialists, in our opinion, the term "module" means such a volume of educational materials, thanks to which the acquisition of theoretical knowledge and practical skills and competences and the performance of specific professional activities are ensured. The main source of training information is a modular package, which is more difficult to develop and is considered a responsible part of the work.

The most pedagogical effect in teaching students of professional education can be achieved on the basis of a consistent approach that combines modular teaching technology and new information technology tools (telecommunication, computer, multimedia).

Such collective teaching allows to implement a consistent approach to educational content, to take into account the individual characteristics of students' cognitive activity and the characteristics of participants in the pedagogical system. It can be seen from these that teaching based on a set of modular and structured educational materials is considered the future of higher education, including higher pedagogical professional education.

The organization of the educational process on the basis of a set of educational materials makes it possible to simultaneously implement the following modes of operation: seeker (initiator); teacher (active); supervisor (examiner).

In such a complex approach, the unit of education is a module, that is, a dose, a certain amount of educational information, necessary to perform a specific professional activity at a given level (bachelor's, master's, etc.). The module is presented to the student in the form of an educational package consisting of the following components: a clearly expressed educational objective; list of necessary devices, materials and tools, list of interdisciplinary connections; educational material in the form of lecture texts and course outlines; as well as methodological instructions for studying theoretical material; materials and methodological instructions for practical and laboratory training to develop skills and competencies related to this model; tasks related to general calculations and course projects (work).

In contrast to the actual practice of structuring the content of traditional courses, the structuring of teaching in modules is carried out on the basis of a consistent analysis of the subject or subject. This means the following: first, it is necessary to construct a graph with a logical structure that collects didactic chains of private chains. Secondly, it is necessary to form the educational content of the module based on the device graph. Thirdly, it is necessary to use clear methods of consistent analysis of the content of the module. These methods primarily include logical diagrams or its improved variant - the animation modeling method. It is desirable to present the content of the module first graphically, and then numerically present the learning elements. Numbering of learning elements should reflect the order of elements. It is necessary to organize a bouquet of sheets based on the module and its educational elements. This makes it possible to easily build the content of the module for each student and change the format or outdated learning elements.

Despite the widespread use of computer-based telecommunications, printed instructional packages remain a major part of the educational process. That's why they should keep basic information and provide basic knowledge. Also, unlike foreign students, our students learned more from books than from videotapes. The study package became the personal property of the student, which means that he can use the texts as he wishes. Because it is convenient to enter notes, add questions and answer them, solve problems and perform other activities of the independent learning process.

It can be seen from this that one of the methods of forming the student's creative activity is teaching technologies, which are considered to be the implementation of a consistent method of perception. Technology always reflects the level of development of the professional field and the level of culture of society as a whole. The task of educational institutions is to organize the teaching process on the basis of technologies that transfer from illustrative-explanatory methods to reflective-formative activities of student thinking.

One of the least studied and researched issues of the theory and practice of modular learning technology is the description of the processes of creating learning modules. It is advisable to choose materials for a modular program in the following stages: a) modeling; b) design; c) construction.

Before the modeling stage, the concept of "science learning level" should be defined. Because the content and quality of the educational material directly depends on it. One of the approaches to the level of educational content S.Ya. It was proposed by Batyshev, in which the following levels of educational content are defined: formation of a worldview-scientific worldview, familiarization with the scientific view of the world; methodological - acquaintance with the methods and forms of scientific knowledge; study of theoretical-fundamental and practical-scientific theories; to reveal the importance of practical science as a productive force, to form a technical worldview, to direct it to the profession.

At the stage of content modeling, the selection of material at the level of an educational subject can be carried out based on the following algorithm (Table 1).

Table 1 Algorithm for modeling the content of educational science

Steps	Content
1.	Creating a system of knowledge goals based on the possibilities of the educational subject and the general goal of training a specialist
2.	Selecting an invariant part of the educational content
2.1.	The first method: selection of leading ideas and concepts related to science according to DTS. Filling these ideas and concepts depending on the level of study of science (worldview, theoretical, practical, etc.)
2.2.	The second method: to select one or more leading ideas and concepts related to this subject, depending on the direction of teaching. Scheme, the leading idea and concept of the section, the appropriate theory and law: the leading idea of the subject and the concepts necessary for its mastery; the minimum fact (evidence) necessary to reveal the content of the lesson-concept

3.	Selection of the variant part of the educational content aimed at forming students' activities and attitudes, needs for knowledge
3.1.	History of science. Biographies of scientists.
3.2.	Analysis of life events. Addressing the life social experience of students. Raising students' life imaginations to the level of scientific concepts.
3.3.	Use of aesthetic, ethical and ecological material.
4.	Compilation of curriculum and technological map

The second stage of the development of the educational module is the creation of a project. At this stage, the idea-module is brought to the level of use in a specific educational environment and depends on the level of education of students.

Depending on the level of education, the content design is carried out in addition to the selection of teaching methods aimed at students to pass fully in-depth or reduced training options.

Implementation of the project within the framework of real requirements is a methodical task, that is, it is considered the third stage of development.

The result of the design is the conceptual apparatus of this educational subject.

The algorithm of modular design of the subject content is presented in Table 2.

The most difficult stage of designing a module is creating a tutorial (module package). Because in addition to setting teaching goals and selecting content, the teacher needs to determine in advance the system of managing the student's learning activities and the methodical provision of the mastering process (summaries, explanations, tests).

Table 2 Algorithm of modular design of educational subject content

Steps	Content
1.	Extracting the leading core ideas (ideas, concepts) in the content of science
2.	Determining the basic base (invariant) and variant part of educational modules, comparing this material with the level of cognitive activities of students.
3.	Separation of enlarged problems of a professional-practical description, the solution of which requires knowledge and skills in the subject of study
4.	Selection of cognitive activity methods based on the selection rules for content selection and determining the size of the educational module

Based on the above, it was determined that the following sequence of pedagogical action is considered the most optimal for the application of modular teaching technology to the teaching of general and special subjects in vocational education of higher educational institutions (Table 3). It can be seen that the process of developing the content of the educational module consists of several stages.

The sequence of pedagogical actions presented in table 3, from the development of the educational module to its direct use in the educational process, i.e., sometimes it exists only in the activity of the teacher (in the brain, thoughts, documents), can be included in which level of content formation? - raises the question. Obviously, it cannot be included in the third

level. Because the selection is not carried out only within the framework of normative educational materials.

Didactic scholars consider the selection itself and the structuring of the material in the module to be a creative activity. So, between levels 3 and 4, there should be another level - the level of the project scenario, in which the future lesson should be embodied. V. M. Zagvyazinsky called it the "lesson scenario level". Designing the content of the module belongs to this level. The planned interaction between the teacher and the student is the level of pedagogical reality. However, this is not a construction, but an organization of training for mastering the content of the educational module. If the student has extracted the content from the module, that is, they have completed all the tasks of the given level, they will have passed to the fifth level.

Table 3 Algorithm for building a learning module

Steps	Content
1.	Expression of learning objectives
2.	Determining basic training through access control, that is, establishing the level of training.
3.	Building the content of the knowledge part of the training module based on the logical structure of the course.
3.1.	Identify the learning elements of the model
3.2.	Identifying relationships between learning elements.
3.3.	Determining the level of mastery of the learning elements of the module.
3.4.	Determining the understanding of learning elements through the formation of test and control tasks
3.5.	Creating a system of teaching methods
4.	Building the content of the operational part based on the logical structure of professional skills
4.1.	Determination of general and special educational skills and qualifications, their regulation
4.2.	Formation of the structure of the motive of actions
4.4.	Choosing a system of educational tasks to form a system of executive actions
4.5.	Forming a system of constructive actions
4.6.	Forming a system of controlling actions
4.7.	Selection of teaching methods and technical means of teaching
5.	Depending on the work regime of the learner and taking into account the specific nature of education
5.1.	Compilation of explanations and assignments to educational texts, taking into account the barriers to understanding, for students to work in the mode of "module-led work"
5.2.	Forming a system of types of independent tasks
5.3.	Control formation of an automated system
6.	Formalization of the educational module into a package based on the rules of construction; activation of teaching level consideration

Thus, the educational module as a pedagogical concept is considered as a means of implementing the educational content and a form of implementation based on the activities of the teacher and the student. From this point of view it can be considered as an invariant summarizing all the features and aspects of concrete modules.

References

1. Батышев С.Я. Блочно - модульное обучение.- М., 1997.- 255 с.
2. Загвязинский В. И. Методология и методика дидактического исследования. – М.: Педагогика, 1982, - 160 с.
3. Машбиц Е. И. Психолого - педагогические проблемы компьютеризации обучения.- М.: Педагогика, 1988.-192 с.
4. Хамидов Ж.А. Использование мультимедийных технологий в профес-сиональном образовании// Среднее профессиональное образование. - Москва, 2011.- №1. С. 68-69.
5. Хамидов Ж.А. Моделирование процесса формирования готовности будущего учителя профессионального образования к применению информационных технологий// Молодой учёный.-Чита, 2011.-№12.-С. 145-150.
6. Ҳамидов Ж.А. Касбий таълим жараёнида ахборот технологияларидан фойдаланишнинг педагогик шарт-шароитлари// Kasb-hunar ta'limi.-Тошкент, 2008.-№ 1.-Б. 21-23.
7. Ҳамидов Ж.А. Умумтехника фанларини ўқитишда ахборот технология-ларидан фойдаланиш// Kasb-hunar ta'limi.-Тошкент, 2008.- № 4.-Б.6-8.
8. Ҳамидов Ж.А. Касбий фанлардан мультимедиали электрон ўқув қўлланма яратишнинг амалий асослари// Kasb-hunar ta'limi.-Тошкент, 2009.- № 4.-Б. 31-32.
9. Ҳамидов Ж.А. Электрон ўқув адабиётлари мазмунини лойиҳалаш технологияси// Kasb-hunar ta'limi.-Тошкент, 2010.- № 1.-Б.21-23.
10. Ҳамидов Ж.А. Умумкасбий фанлар бўйича машғулотларни мультимедиали педагогик воситалардан фойдаланиб ташкил этиш методикаси// Pedagogik mahorat.-Бухоро, 2011.- № 2.-Б.16-19.
11. Ҳамидов Ж.А. Электрон ўқитиш жараёнини моделлаштириш// Узбекский журнал проблемы информатики и энергетики.- Тошкент, 2011.-№ 4. С. 71-76 стр.
12. Ҳамидов Ж.А. Таълим жараёнида ахборот технологияларини қўллаш - ўқитиш самарадорлигини ошириш омили// Kasb-hunar ta'limi.-Тошкент, 2013.- № 6.-Б. 15-20.
13. Ҳамидов Ж.А. Умумкасбий фанлар бўйича электрон ўқув – методик мажмуанинг тузилши ва таркиби// Kasb-hunar ta'limi.-Тошкент, 2015.- № 6.-Б. 2-6.
14. Hamidov J.A. Main Components of information Culture in Professional Teacher education in Informatization of Society// Eastern European Scientific Journal /Auris – Verlag.de 2016.- №1. C.102- 105.
15. Ҳамидов Ж. А. Ўқитишнинг компьютер воситаларини яратиш техноло-гияси // Kasb-hunar ta'limi.-Тошкент, 2017.- № 1.-Б. 34-42.
16. Ҳамидов Ж. А. Касб таълими ўқитувчиларини тайёрлашда ўқитишнинг замонавий дидактик воситаларини яратиш технологияси // Монография.-Тошкент, "Sano-standart" нашриёти. 2017.- Б. 160.