INTEGRATIVE APPROACH TO TEACHING GENERAL SCIENCES TO HIGHER EDUCATION STUDENTS

Shodiyev Ne'matjon Sadirovich[1]
Researcher of Bukhara Institute of Natural Resources Management[1]

ABSTRACT

In this article, teaching general professional subjects based on an integrative approach to higher education students, the content of general professional science in the construction of the methodical system of education, programmatic and methodical support of the educational process, the main components of the methodical system of education, informational and methodological support of professional subjects and the teaching methodology of general professional subjects in higher education illuminated approaches are discussed.

Keywords: Education, integrative approach, science, legal documents, material and technical base, methodology, technology, aspect, theory, practical, program, methodology.

INTRODUCTION

In recent years, effective management of the higher education system using modern methods, determination of the strategy for the development of the higher education system based on the real needs of the economic sectors considered as personnel customers, re-development of state education standards and qualification requirements, effective organization of the qualification practice of students, great steps are being taken to strengthen the material and technical base of higher education institutions, improve educational and methodological work, and put foreign experiences into practice.

Pedagogical scientists and practitioners of our republic are conducting studies on the development of scientifically based modern educational technologies and information technologies and their introduction into the educational process, improvement of normative documents, and improvement of the quality of education. In this regard, the Decree of the President of the Republic of Uzbekistan dated October 8, 2019 "On the concept of the development of the higher education system of the Republic of Uzbekistan until 2030" No. and was developed for the purpose of improving the quality of education, training competitive personnel, effective organization of scientific and innovative activities, and development of international cooperation on the basis of ensuring solid integration of production. It has been shown that this concept is not effective enough for innovative activities, wide implementation of research results, commercialization of scientific developments, attracting talented young people to scientific and research work, and strong integration of education, science and production is not provided enough.

In our country, great attention is being paid to the fundamental reform of the education system as well as all other sectors. In the Development Strategy, there are seven priority areas of development of the Republic of Uzbekistan in 2022-2026. Targeted preparation of TNE for inclusion in international ratings" is defined as a priority task. The priority directions for the systematic reform of higher education have been defined in the Consercia for the Development of the Higher Education System of the Republic of Uzbekistan until 2030. This shows the need to develop the professional competence of future engineers based on an integrative approach in technical higher education institutions.

The main part

When building a methodical system of teaching general professional subjects in higher education institutions, the content of general professional subjects is selected taking into account the main content areas of this course. The problem of building a meaningful structure is largely related to theoretical, methodological and normative-legal aspects of education.

The theoretical and methodological aspect is manifested in the fact that the structure of the content has a direct impact on the methodology of choosing the educational material.

The normative-legal aspect indicates that the diagnosis of mastering the educational material is also carried out according to the main highlighted content areas. When developing drafts of standard programs for higher education institutions, including choosing a method of combining them into one department (course, module), we need to theoretically justify and methodologically support our choice. This aspect of the problem should also be taken into account when developing the content structure of general professional sciences, as it is necessary to think about the necessary technological efficiency of its use when drawing up programs and plans.

It is known that the main structure of the methodological system of education includes the following components: educational purpose, content, methods, forms and tools. We relied on a slightly expanded concept of the methodological system proposed by us, which includes the expected results (increasing the level of information technology competence formation) and the main factors affecting the components of the methodological system (Fig. 1).

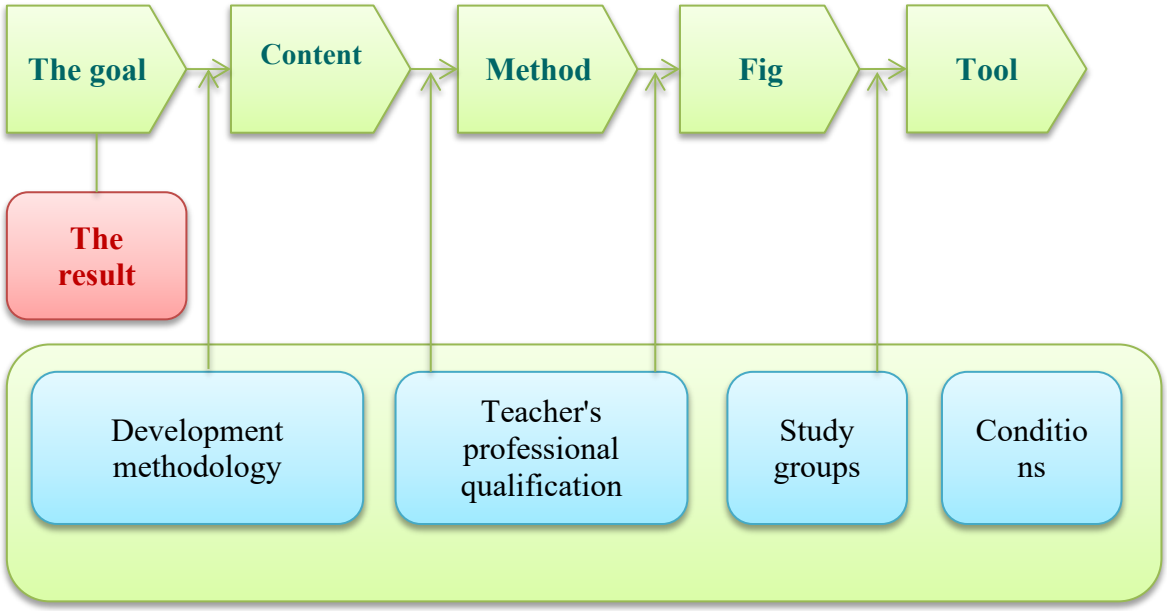

Figure 1. Organization of a methodical system and factors affecting them

The purpose of teaching general professional subjects determined the principles of content selection. An important factor in the choice of content is the methodology that guides the developer. The goal, methodological basis and content determine the personal and professional qualities of the teacher and together with them "emphasized" the choice of optimal teaching methods. Within the framework of the selected teaching method, the most effective forms and means of education are determined based on the goals and content, as well as the conditions of the educational environment and the characteristics of the educational group.

The main feature of teaching general professional subjects in higher education institutions is the need for a convenient presentation of complex theoretical foundations on the composition and mode of operation of various real technical devices and systems, which most students have not encountered in practice. As a rule, general professional subjects are studied in the third year, and familiarization with real technical objects and their production technologies is carried out later in higher courses within the framework of specialized subjects. Such a sequence of learning creates difficulties in mastering the material, but in the end it helps to form generalized deep theoretical knowledge about technical objects and their production technologies.

Set of idealized physical objects in the process of studying general subjects. An idealized technical object is much more complicated than an idealized physical object.

Technical thinking is a special type of intellectual activity. Technical concepts have a special structure due to the diversity of properties and functions of material and technical objects, important connections and relationships that reflect these concepts. Technical thinking has three components according to its structure: conceptual-image-practical thinking. Its theoretical (conceptual), figurative (visual) and practical (effective) components are not only interconnected, but also interact, and each component acts as an equal member of the trio.

The programmatic and methodological provision of the educational process should be based on the connection and interaction of the conceptual, figurative and effective components of thinking.

The information-methodological support of general professional sciences should ensure the reflection of the system of technological concepts of the science in the form of a high-order hierarchical structure, each level of which corresponds to a certain interdisciplinary level, and also take into account both single-level and interlevel logical relationships of these concepts. .

In the process of teaching general professional sciences, it is necessary to ensure that future engineers master the entire spectrum of theoretical and practical knowledge and skills at the calculation-algorithmic, model-research and design-technological levels.

In our opinion, the most important professional qualities of a teacher of general professional subjects in higher education institutions are: knowledge of the subject, ability to establish contact with students, ability to create a special collaborative environment in the audience, high methodological skills, that is, the use of pedagogical and methodological technologies. As a teacher of higher education institutions, he should have design, construction, adaptation, organizational, communicative, diagnostic, practical, evaluation and reflexive skills.

A professor-teacher should develop and build a professionally oriented teaching technology, justify the logic of organizing pedagogical interactions with students at the communicative level, determine the forms, methods and criteria of teaching, control and to organize self-control, he should create pedagogical tests and test tasks. Thus, the content of the professor-teacher's activity will have a creative description, which requires constant updating of his integral knowledge and professional growth.

There are many and diverse approaches that are covered in the methodology of teaching general professional subjects in higher education. Below (Table 1) we will consider some of them:

Table 1: Different approaches to education in the integrative teaching methodology

No	*Naming*	*Content*
1	Systematic approach	Classification of the studied phenomena and processes based on some signs, establishing ideas, concepts and legal relationships
2.	A behavioristic approach	Forming skills and competence in the studied material by mechanically repeating it many times
3.	Inductive - conscious approach	Moving from experiences and practices to an understanding of processes and rules
4.	A functional - semantic approach	The main factor in students' use of theoretical knowledge in their activities is to remember and apply information - work on the function and meaning of using knowledge and skills.
5.	Communicative approach	A logical-semantic or logical-spiritual approach, a communication process, as the goal of performing an object or its sign, or an action performed, etc.
6.	A structural - functional approach	It allows to take into account the organic unity between the scope of content and the form of the scope of expression relative to practical activity.

The educational process should be organized on the basis of the artistic process model with the logic of organic circulation of any vital content: the human image is combined with the cultural image, knowledge is carried out along with experiences, and intuition is based on logic. This process can take place as a result of the following activities:

inclusion of social processes related to life activities of learners as a training course in the educational content;

ensuring the proportionality of educational content and the needs of the learner who is developing as a person;

the choice of subjects based on open educational courses, which can be changed and reconstructed during the collaborative activity of the student and the teacher from among the educational fields by the learner;

weakening the barriers between different disciplines and educational areas that may arise based on an integrated approach.

The purpose of this section is to identify historical and conceptual approaches to the construction and development of education as a system. The analysis of historical and pedagogical literature on this problem allows us to observe the process of formation of education in our Republic. The pedagogical process of socially transferring experience from the previous generation to the next generation has passed a certain evolutionary path of improvement.

Summary

In the system of higher education, the following is carried out for students who are taught general professional subjects on the basis of an integrative approach :

students' human, scientific outlook and ecological , aesthetic culture;

conscious assimilation of systematic scientific knowledge about the field, the place and role of the individual in it ;

the student's field knowledge, skills and qualifications;

formation of skills for safe operation as a highly qualified specialist in the relevant branch of industry;

forming the experience of active knowledge activity of a problem-creative nature using scientific methods to study scientific activity, methodological knowledge;

Human creativity, society in the existence and development of society in harmony with nature role, science and scientific achievements about ideas work exit;

development of intellectual and creative abilities, abilities of self-awareness.

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Information about authors

Shodiyev Ne’matjon Sadirovich- Researcher of Bukhara Institute of Natural Resources Management