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Research Article

THE ROLE OF CAREER-ORIENTED TEACHING TECHNOLOGIES IN THE FORMATION OF CARTOGRAPHIC COMPETENCE OF STUDENTS OF TECHNICAL HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

In this work, the teaching technologies aimed at developing the cartographic competence of future engineers in technical higher education institutions are discussed.

KEYWORDS

General subjects, cartographic competence, teaching technology, future engineer.

INTRODUCTION

The quality of training of specialists with professional competence in higher education institutions is largely determined by the effective teaching of general professional subjects.

Choosing teaching methods and setting educational goals in general professional subjects is a somewhat complicated process. In this process, a high level of professional skills is required from the pedagogue. The process of development of geodetic-cartographic competence in the students of technical higher education institutions 5311500-Geodesy, cartography and cadastre (construction) is carried out on the basis of comprehensively

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acquired knowledge in general professional and specialized sciences.

Today, in order to search for new mechanisms aimed at increasing the efficiency of the continuous education system in our country, pedagogic scientists and researchers are paying a lot of attention to the development of modern educational technologies, including vocationally oriented problem-based learning technologies, and their application to educational practice.

Problem teaching is a new stage of quality of education. In the present era, it is not so important to provide students with a certain set of information and recommendations in higher education institutions, it is important for them to have clear approaches for independent assimilation of information and turning it into their own knowledge. Of course, the engineer will not be able to convey some information to the students during the lecture, but due to the saved time, conclusions will be made, generalizations will be made, a worldview will be formed, that is, the problematic nature of teaching will be revealed. It is important for students to think independently and critically and make well-founded decisions. The ultimate goal of education is not just memorization of knowledge by students, but the formation of practical skills that will be necessary in their professional activities. Teaching is not imparting knowledge, but teaching the socio-historical experience of the previous generation. The engineer should communicate widely with the students. It is necessary to talk about life and how to use knowledge while giving them ready-made knowledge in textbooks. Through problem-based learning, the student can be taught to express his opinion, defend it and argue. If there is no conflict in the teaching process, there will be no debate or discussion. There is no solution to the problem without discussion. The spirit of mutual respect, trust and diligence should prevail during the lesson. It is necessary for the student to know that the engineer sincerely wants to teach, to clearly feel that he sees him as his equal. And this, undoubtedly, is inextricably linked with the consideration of the individual factor in teaching, the use of pedagogy of working together, and the humanization of education.

- The camaraderie of the pedagogical process, which is shown in the previously known levels of knowledge, skills and competences in educational subjects such as "Cartography", "Topography" and "Geodesy". This, in turn, represents certain steps and logic of organizing a pedagogical process aimed at fulfilling the standards of the technical direction of the higher educational institution, the educational direction of the higher educational institution 5311500-Geodesy, cartography and cadastre (construction) and the qualification requirements for graduates;
- directing the development of geodetic-cartographic competence in students towards a specific goal;
- consistency and integrity manifested in the interdependence of the orderly application of standard forms, methods and methods of teaching in educational, educational and school work;

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- a mechanism considered from the point of view of searching for and implementing new rational forms, methods, means and procedures of educational activity used in solving the current and prospective tasks of educational, educational-methodical work that ensures a high level of training of graduates.

Consequently, the creation and implementation of a professionally oriented problem-based teaching technology for teaching general professional subjects such as cartography, geodesy and topography in technical higher educational institutions 5311500-Geodesy, cartography and cadastre (construction) education has become an opportunity to develop geodetic-cartographic competence among students.

Another important factor in the development of vocationally oriented problem-based teaching technology is that it is a preliminary diagnostician of the level of preparation of students, i.e. readiness to carry out educational activities in the framework of vocationally oriented teaching of general subjects such as cartography, topography and geodesy. Such diagnostics made it possible to obtain information about the initial level of students' knowledge, skills and abilities, the level of interest in learning science, and students' understanding of the goals of studying cartography, topography and geodesy.

One of the tasks of a vocationally oriented problem-based teaching technologist for the teaching of general professional sciences (cartography, topography, geodesy) in the lower grades is to prepare students for the educational process of technical higher education.

In recent years, in our country, the contradiction between the need of society and the state for high-quality higher education and the lack of readiness of applicants to study in the new conditions of interaction with the educational environment of technical institutions of higher education is growing.

In the context of a comprehensive study of the materials of the research work and taking into account the obtained data, the main directions of the development of a vocationally oriented problem-based educational technology of teaching general professional subjects aimed at developing the cartographic competence of students of technical higher education institutions were determined.

Career-oriented teaching technology is a technology that provides students with personal skills important for their future professional activities, as well as the formation of knowledge, skills and abilities that ensure the performance of functional tasks at the specified goal.

The technique of teaching general vocational subjects in higher education is a system of scientifically adapted and standardized forms, methods, procedures and procedures, which is used in the design, organization and implementation of joint educational activities.

Summarizing the above, we can conclude that in order to achieve a new quality of training future

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specialists for professional activity (development of cartographic competence of students) in technical higher education institutions, we propose to build training based on the synthesis of five approaches.

Professional knowledge and skills in the field of geodesy and cartography will help students develop interest in working with maps and develop cartographic thinking.

Studying the sciences of geodesy and cartography gives students practical help in forming cartographic and geographical thinking, mastering the technique of research activities, acquiring independent learning skills, forming a cartographic worldview, and influencing their attitude towards their future professional activities; develops cognitive activity, the desire for independent learning, develops the attitude of students to general professional subjects as a means of professional knowledge and self-improvement.

In the design of a professionally oriented problem-based educational technology of teaching general professional subjects, the formation of cartographic competence of students is required in the first place. Achieving this goal is confirmed by the availability of knowledge, skills and qualifications in the field of general professional sciences, as well as the ability and readiness to use their totality for the implementation of educational and professional activities.

A detailed review of educational goals will be the basis for determining specific laws of the process of achieving them in the formation of geodetic-cartographic competence of students of technical higher education institutions. Therefore, it is necessary to consider the specific characteristics of educational goals aimed at the formation of cartographic competence of students of technical higher education institutions 5311500-Geodesy, cartography and cadastre (construction) education and their interaction with all components of educational technology.

In terms of geodetic and cartographic education, the most appropriate in this study is a contextual approach that allows to determine the educational process. It is appropriate to highlight the possibility of determining the system of skills and qualifications that students should acquire during the teaching of geodesy and cartography. At the same time, relying on the student-oriented approach, in this regard, it is necessary to take into account the possibility of making certain adjustments by students based on their individual psychological characteristics, life experience, level of preparation, etc.

In our opinion, the motivating factor for educational activity in the conditions of professionally oriented problem-based teaching of general professional subjects in technical higher education institutions is a system of motives that includes educational, cognitive and professional motives. So, educational motives are related to the rational organization of students' educational activities and are aimed at mastering the ways of learning. They include interest in ways of self-acquisition of knowledge and self-

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regulation of educational activities in learning general professional subjects.

A positive attitude to the teaching of general subjects (cartography, topography, geodesy) is formed due to cognitive motives, among which cognitive interest stands out, because it determines that it is aimed at mastering the unknown, turning ignorance into knowledge, and changing new knowledge. The content of the acquired knowledge and the nature of the organized activity help the development of cognitive interest. Cognitive motives, based on professional content, become professional motives.

At the same time, it is appropriate to distinguish between cognitive and practical interest, although they have a lot in common in external aspects. At the same time, it should be noted that certain relationships cross cognitive and practical interests: the formation of cognitive interests is a necessary condition for the development of students' professional desires and intentions, and later in the process of professional activity, they affect their development as a manifestation of the need to constantly fill the student's interests. .

Having considered the general structure of motivation in the process of teaching general professional (cartography, topography, geodesy) subjects, it should be noted that the transition from the student's educational and cognitive activity to the professional activity of the graduate is in many ways inextricably linked with solving the problem of turning cognitive motives into professional motives.

Summarizing the above, it should be noted that the motivational component is a key factor in improving the quality of teaching of general professional (cartography, topography, geodesy) subjects in higher education institutions, and helps students to form and develop geodetic-cartographic competence as a component of professional competence.

Taking into account the purpose and motivation, the structure of the process of forming the cartographic competence of students in technical higher education institutions is determined.

Technical direction higher educational institutions 5311500-Geodesy, cartography and cadastre (construction) in the field of education in general professional (cartography, topography, geodesy) disciplines, relying on the theory of the didactic unity of the content and procedural aspects of teaching within the framework of the technological approach to the organization of education helps to realize the goal set by the engineer .

It is recommended to choose the content of general professional ("Cartography", "Topography" and "Geodesy") subjects in accordance with the DTS of higher education, taking into account the following criteria:

- holistic implementation of the tasks of forming an all-round developed mature personality in the process of education;
- high scientific and practical importance of the content;

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- the level of complexity of the content should match the real educational opportunities of the learners;
- the content and volume of the time allocated for studying these subjects;
- compatibility of the content of the existing technical and material-technical base of the department.

In the process of choosing the content of training in general-professional ("Cartography", "Topography" and "Geodesy") subjects, attention is paid to determining the cartographic competence necessary for the implementation of certain types of educational and professional activities of graduates.

All general professional subjects mastered by future engineers should not be limited to the function of providing information and teaching, but should serve to develop the functions of developing students' independent creative thinking and education. In this regard, the engineer has to solve the following tasks appropriately:

- to determine the educational content (subject program, textbooks, training manuals, methodical instructions) in each subject block in the curriculum;

- to be able to evaluate the forms and methods of education and the possibility of applying innovations to them;
- to be able to effectively use the possibilities of information and communication technology in the educational process;
- inclusion of educational projects in the content of the subject in order to implement the motivational component in the educational process;
- development of criteria for objective assessment of knowledge, skills, competences and personal qualities to conduct monitoring and monitoring of the student's learning level.

In this process, the future engineer's ability to effectively apply his professional knowledge, skills and qualifications in practice, and the formation of professional competence are determined.

The following factors were taken into account when choosing educational institutions of general professional subjects:

- general goals of education, upbringing and development of students;
- specific characteristics of the methodology of teaching general professional subjects;
- purpose, content and functions of the teaching material;
- time allocated to study the topic;
- the level of material and technical equipment, that is, the availability of necessary equipment, visual aids, and technical resources [56];
- level of preparation and personal qualities of the engineer.

The technical direction used in the teaching of general professional sciences is aimed at the formation and development of cartographic competence of students of higher education institutions, and the teaching technologies of

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geodesy, topography and cartography are aimed at the personality of the student, his active participation in self-development, the acquisition of high-quality knowledge, professional skills, aimed at solving specific problems creatively. They contribute to the formation and development of students' cartographic competence, personal and professional development.

The purpose of lectures, lectures or practical training is aimed at the formation of certain knowledge, skills and qualifications, and the following methods are used in its implementation: methods that activate the cognitive activity of students (explanatory-illustrative, reproductive, productive, problem presentation, narrow search, narrow research), analytical thinking developmental ends (problem solving with the help of mental operations, analysis of practical activities).

Leading methods are active teaching methods that allow students to increase cognitive activity. Thus, the activities of engineers and students, who are full-fledged subjects of activity in solving professional problems, will change. In teaching general professional subjects, they help to achieve the following results:

the highest level of consciousness in improving students' thinking, perception and behavior;

- perfect involvement in the educational process and forced interaction of students with each other;
- high motivation and creativity in the teaching process;
- effectiveness of development of professional and practical skills and qualifications in a short time.

The independent work of students is considered to be a component of the educational process in the technical direction of higher educational institutions. Independent work is understood as work performed by students under the guidance of an engineer, but without his direct participation. The role of this type of education in the cognitive activity of students is extremely large. It is aimed at forming a conscious attitude of students to mastering theoretical and practical knowledge, forming intellectual work skills in them.

Independent work assignments take various forms: from simple assignments to independent study of complex didactic units, creative work is understood for a long time, both in the classroom and outside. study of general professional subjects implies acquisition of knowledge, conceptualization, analysis of literature on the studied problem, performance of educational and creative work, exercises of various forms, performance of hiqob - graphic work, etc.

Thus, the process and forms of teaching general professional subjects ("Cartography", "Topography" and "Geodesy") to students are very diverse, and only in unity, when they are rationally combined with each other, they can form cartographic competence.

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