Problem-active forms of education as a tool for implementing a competency-based approach

Abildina S.K.
Doctor of Pedagogical Sciences, Full Professor
Karaganda State University named after E.A. Buketov
Bozakhaeva G.K.
doctoral student
Karaganda State University named after E.A. Buketova

Annotation. The article tells about the problems of active forms of education being introduced today into the education system. These forms are one of the tools for realizing the level of education. The relevance of this article lies in the fact that pedagogical technologies are expressed in work with various search information systems, where activities related to the solution of research works are presented. In research work, situational exercises, design research technologies can be used.

The latter are activities associated with the solution of a creative, research problem with a previously unknown solution; it presupposes the presence of the main stages characteristic of research in the scientific field, and standardization in accordance with the traditions accepted in science. Thus, the teacher's role is to suggest new sources of information or simply direct the student's thought in the right direction for an independent search.

Keywords: education, pedagogy, technology, training, profession, information systems.

At present, the willingness to conduct research, research thinking is increasingly beginning to be seen not as the prerogative of only scientists, but as an integral characteristic of a person, which is part of his professionalism. One of the tools for the implementation of this position is the competence-based approach,

which is being actively implemented today in the education system and requires teachers of all levels of education to turn to problem-active forms of education.

The integration of Kazakhstan into the world economic community, including the signing of the Bologna Declaration by our country, led to a radical change in the standards of higher education and educational programs.

Economic progress, which is based on market principles, also requires from today's specialists the ability and skills of flexibility, speed, find the optimal solution to certain problems, as well as find problematic questions and answer them faster. Thus, trainees must have the skills of self-study and detailed analysis.

The economy of the world community does not stand still, which in turn raises quality standards. Likewise, the education system must be co-ordinated so that there are high-quality, oriented and competitive individuals on the labor market. Accordingly, the educational process should be structured into cognitive learning elements.

In the age of the Internet and information technology, there is a surplus of information base, which exceeds human capabilities in an unlimited number of times. Information is renewed, doubled, decomposed, and rapidly ages. And the need for a quick response to the flow of information is born, as well as the ability to work with such a flow and amount of information.

Thus, the state education standard, in accordance with the requirements of the time and the informative flow, is simply obliged to provide for the natural use of active and interactive forms of the educational process in the educational process.

A wide regulation of the success of students always depends on external and internal factors, their nature, activity and degree of independence. And in the choice of teaching methods, it is these points that the teacher should take into account.

It is strategically important for teachers to create learning material including in the process of the students themselves (students) on intellectual, social and personal activity.

Pedagogical technology in its structure has three components: conceptual basis; content of training (learning objectives - general and specific); procedural - the actual technological process (organization of the educational process, methods and forms of activity of students and teachers, diagnostics of the educational process). The most significant role in the formation of research competencies today is played by the technologies of the so-called active learning of students, which, according to A.A. Verbitsky, marks the transition from essentially regulating, algorithmized, programmed forms and methods of organizing the didactic process to developing, problematic, research, search, providing the birth of cognitive motives and interests, conditions for creativity in learning [1, p. 56].

Let us recall that passive teaching methods presuppose the dominance of the influence of the teacher on the students, who is assigned the central role - the role of the knowledge translator. Active learning is aimed mainly not at the teacher's presentation of ready-made knowledge, their memorization and reproduction, but at the independent mastery of knowledge and skills by students in the process of active mental and practical activity. Such teaching technologies encourage students to actively think and practice in the process of mastering the educational material [2, p.101].

The use of various forms of education and pedagogical technologies aimed at the formation of students' research competencies should be based on the following principles:

- prioritization of knowledge of basic concepts and theories;
- from simple to complex;
- from reproduction to creativity;
- from joint work with the teacher to the independent activity of the student; taking into account the requirements of the university for scientific student work in this area of training [3, p.62].

Let us reveal the content of the concept of "forms of education": this is the method and nature of the interaction of the teacher and students, as well as students with each other. The main organizational forms of education at the university are:

lectures, practical and seminars, students' independent work (IWS), exams, tests, consultations. For the formation of research competencies, such extra-curricular forms of work as problem research groups and scientific circles are very effective.

IWS has two components: extracurricular and supervised independent work (checked by the teacher (in whole or in part)). Traditionally, the first group of CDS forms includes: preparation and writing of abstracts, reports, essays on given topics; independent solution of situational, problematic and other tasks; case analysis; work with primary sources and periodicals (both printed and electronic); preparation of thematic reviews on periodicals; translation of scientific texts; compilation of an annotated list of articles on the problem; preparation of reviews of an article, monograph; study of official, statistical and scientific information; preparation for participation in scientific and practical conferences, round tables, etc .; design of multimedia presentations of reports; development of scenarios for business games, registration of their results; self-control (including computer testing, etc.).

Supervised (CSW) - controlled independent work of students, organized in the classroom under the supervision of a teacher. It can be performed in lectures, workshops, consultations and consists of individual student work, work in pairs and in small groups. At the same time, the role of the teacher can vary: either he only organizes and supervises the work of students, or is directly involved in joint work with students and then also performs a leading function.

The forms of controlled CDS in the formation of research competencies are: a report on the conducted empirical research; scientific report (text of the speech); article; analysis of a specific situation (case) with the preparation of an analytical note; business game scenario development; abstract, essay; performing an assignment on TRKM (technology for the development of critical thinking); synopsis of a scientific article, monograph; analysis of statistical and factual materials on a given topic; science project; drawing up tables, diagrams, models, calculation of indicators based on survey materials and statistical materials; the

results of the search (selection) and review of literature and electronic sources of information on an individually set problem; sections of thesis, etc.

Let us illustrate the continuity of the formation of the universal competence “Adherence to ethical norms and values of scientific activity”. As you know, R. Merton defined the ethos of science as “an affectively colored complex of values and norms, which is considered obligatory for a person of science. Norms are expressed in the form of instructions, prohibitions, preferences and permissions ”[4, p.70]. At the undergraduate level, this competence is expressed in the student's ability to understand the role of ethics in scientific research; at the master's level - to demonstrate research integrity when working with research data and information; after graduation - to comply with legal and other restrictions when working with research data and information. At the undergraduate level, the learning outcomes are: the student's knowledge of the ethical norms of scientific activity and adherence to the rules of scientific citation in accordance with the norms of scientific ethics.

As extracurricular forms of work, universities organize Schools for Young Researchers, where students get the opportunity to communicate with students from other universities, other countries, learn to conduct discussions, listen to lectures by famous scientists, subsequently adopting their style of scientific interaction.

The most suitable for the formation of this competence may be pedagogical technologies of content analysis of publications; analysis of specific situations (case-study), which reflect typical situations that a specialist will have to face in the course of his professional activities. The case forms an approach, allows to see the typical in situations and predetermines the student's ability to analyze situations through the use of analogy. Case technology teaches research skills through the application of a simulation method. In the undergraduate program, the most appropriate situations are illustrations as the most simple for students to analyze.

Discussion as a pedagogical technology is aimed at developing the teacher's ability to comply with ethical norms of scientific communication, to accept

different points of view, including those that do not coincide with his own, to focus on the partner's position in interaction, to take into account different opinions and strive to coordinate different positions in cooperation, to formulate his own opinion and position.

Information technologies (for example, work with various search information systems - Web of Science, Science Direct, Journal Citation Reports, etc.) are relevant pedagogical technologies at this stage of the formation of research competencies; case analysis (at the master's level, you can already apply exercise situations); design and research technologies. The latter are activities associated with solving a creative, research problem with a previously unknown solution; it presupposes the presence of the main stages characteristic of research in the scientific field, and standardization in accordance with the traditions accepted in science. The teacher's role is to suggest new sources of information or simply direct the student's thought in the right direction for independent search. The student, on the other hand, must independently solve the problem, applying the necessary knowledge, sometimes from different areas, to get a real and tangible result. The work is most often carried out as part of a mini-group, where the student not only gains experience of social interaction in a creative team of like-minded people, forms his own idea of the principles of cooperation and scientific organization of labor, but also uses the knowledge gained in his activities.

Now let's consider the continuity of pedagogical technologies for the formation of professional research competence, which has its development at all three levels of higher education, Table 1.

Table 1

Pedagogical technologies for the formation of professional research competence

The level of education	Requirements / Descriptors	Organizational forms of	Forms of independent / supervised work

		training	
Undergraduate	Able to collect and process information and factual materials, justifying the use of primary and / or secondary data from various sources within the framework of the tasks set by the head	Practical lesson, IWS, consultation of a scientific supervisor, all types of practices (educational, industrial, pre-diploma)	Checking and evaluating the sections of the course work and thesis by the teacher; preparation of abstracts; development of a research program; analysis of statistical and factual materials on a given topic; drawing up tables, diagrams, models; calculation of indicators based on survey materials and statistics; search (selection) and review of literature and electronic sources of information, etc.
Master's degree	Ability to search, critical analysis, generalization and systematization of scientific information, to formulate research goals and choose optimal ways and methods to achieve them	SRS (preparation of an article for a scientific journal, participation in a scientific and practical conference at various levels (with the	Technology for the development of critical thinking (a type of student-centered learning technologies), which forms the ability to work in a group; graphically design text material; interpret the available information creatively; distribute information

		publication of the abstracts of the report)), consultations of a scientific supervisor, participation in research work carried out by the department (faculty), practice (research work, production and pre-diploma).	according to the degree of novelty and significance; generalize the knowledge gained; strategy “I know - I want to know - I learned”; information technology, case analysis (for example, assessment situations and problem situations); "Brainstorm"; Problem learning technology.

Among the pedagogical technologies, we first of all note the activity-based teaching technologies, which involve modeling professional activity in the educational process of the university. According to A.A. Verbitsky, “quasi-professional” activity is a transition from educational to professional; students do not carry out their own professional activity, but imitate it, which gives students an idea of the integral content of professional activity, its internal structure, the relationship and interdependence of its elements [1, p.46]. In a business game, in conditions of joint activity, each student acquires the skills of social interaction, value orientations and attitudes inherent in a specialist.

The reason for the duality in relation to professional and universal competencies is an attempt to rethink the possibilities of their formation within the framework of old educational models and pedagogical technologies, while we should talk about a radical restructuring of the educational process itself, when in

conditions of a sufficiently limited number of hours, students acquire if not all , then a fairly wide range of competencies.

Preparation for research is thought of as a key and priority task of domestic universities, and with an emphasis not only and not so much on today, but on the competence of tomorrow. They involve the training of such a researcher-teacher who is able to go beyond the dry academicism, divorced from real life, social practice, and become an expert or consultant in various social projects and programs; a professional who is ready for constant mobility, retraining, changing specializations, mastering new social and professional functions. In fact, this is the core of pedagogical education, the value of which in these conditions not only increases, but becomes uncontested, only it is thought not as a set of knowledge, but as a scale and degree of a person's definition in culture [5, p.58].

References

1. Verbitsky A.A. Active Learning in Higher Education: A Contextual Approach. - M.: Higher school, 1991. 207 p.
2. Modern educational technologies in the educational process of the university: methodological guide / author - comp. N.E. Kasatkina, T.K. Gradusova, T.A. Zhukova, E.A. Kagakina, O. M. Kolupaeva, G.G. Solodova, I. V. Timonin; otv. ed. N.E. Kasatkina. Kemerovo: GOU "KRIRPO", 2011. 237 p.
3. Shkerina T.A. Formation of the research competence of future bachelors - pedagogical psychologists in the university: dis. ... Cand. ped. Sciences: 13.00.08. Krasnoyarsk, 2013. 237 p.
4. Merton R. Social theory and social structure. - M.: AST, 2006. 873 p.
5. Researcher of the XXI century: the formation of competencies in the higher education system. Collective monograph / otv. ed. E.V. Karavaeva. - M .: Publishing house "Geoinfo", 2018. - 240 p.