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Basic Competencies Formed While Studying the Subject of Physics

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Annotation. The article deals with the formation of basic competencies when teaching a physics course. The types, functions, pedagogical and psychological qualities of the basic competencies on which they are based are substantiated.

Key words: formation of competencies, profession, pedagogical qualities, practical context, degree of universality, key competencies, educational practice, learning activities.

Key (basic, universal) competencies are multifunctional, oversubject and multidimensional. Mastering them allows you to solve a variety of problems in everyday, professional, social life. Key competencies are based on the properties of a person and are manifested in certain ways of behavior that are based on his psychological qualities, include a wide practical context with a high degree of universality.

Key competencies include:

• general cultural competence;

• social and labor competence;

• communicative;

• competence in the field of personal definition (the experience of self-knowledge, understanding one's place in the world, the choice of value, target, semantic settings of one's actions.

In school educational practice, we can distinguish:

• mathematical competence - to be able to work with numbers, numerical information (possess mathematical skills);

• communicative (which is closely related to language) - to be able to communicate, to be understood, to communicate easily;

• informational - own information technologies, work with all types of information;

• autonomy - to be capable of self-development, the ability to self-determination, self-education, competitiveness;

• social - be able to live and work with people, with loved ones, in a team, in a team; -productive - be able to work, be able to create your own product, make decisions and be responsible for them;

• moral - willingness, ability and need to live according to traditional moral laws.

When forming the content of education, both concretization and filling of key competencies occur. Subjects with the leading component "methods of activity" can be completely built on the basis of a competency-based approach in the lessons of the Russian language, mathematics, computer science, and physics. When studying any academic subject, the educational activities of students are organized, therefore, there are opportunities to form educational and cognitive competence.

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The fundamentals of sciences are an element of culture, therefore, it is possible to form general cultural competence on these subjects. But since the ability to navigate in the space of culture, to self-determine in relation to it, is important here, then in the teaching of subjects of this type, the emphasis should be increased on semantic, worldview elements, determining the student's own attitude to what is being studied. In academic subjects with the leading component "scientific knowledge", the formation of communicative competence, the competence of personal determination will be carried out more at the expense of the procedural side of education than at the expense of content.

In subjects with the leading component "experience of an emotionally valuable attitude to the world," the content of education can be oriented towards the formation of general cultural competence and personal definition. Learning situations, the action in which forms the experience of solving problems, are usually practical situations, role-playing games in classroom and extracurricular activities. And of course this can be realized in the study of physics.

Every teacher should ask himself what is more important for my students: to comprehend physical laws or, by comprehending them, to enrich and realize themselves, their place in this vast world?

The knowledge is mastered, but did it help the student to feel more reliable in the life around him, did they encourage him to be creative, to actively apply them. Even Aristotle noted that ": the mind is not only in knowledge, but also in the ability to apply knowledge in practice:". Other wonderful words from the Chinese proverb: "I hear - I forget, I see - I remember, I do - I understand" - prove the need to develop key competencies.

Key competencies - refer to the general (meta-subject) content of education. In the three-level hierarchy proposed by A.V. Khutorsky, key competencies come first. Further, general subject competencies (refer to a certain range of academic subjects and educational areas) and subject competencies (private in relation to the two previous levels of competence, having a specific description and the possibility of formation within the framework of academic subjects).

To form key competencies, it is necessary to choose a learning technology in which students work independently most of the time, learn to plan, organize, self-control and evaluate their actions and activities in general.

From the variety of modern educational technologies, I chose research as the leading technology. I believe that this technology, like no other, contributes to the formation of almost all the key competencies I have chosen for students. The dominance of research technology in education does not mean the complete exclusion of others, it only implies its predominance.

The basis of pedagogical technology, modeling the process of scientific research, is a system of concepts, definitions, rules, didactic tools and methodological techniques. The implementation of the technology goes through research lessons, research workshops, home practical work and extracurricular research work.

In research lessons, I set two goals: teaching the subject (didactic) and teaching research activities (pedagogical).

According to the volume of the scientific research methodology being mastered, I conduct research lessons and lessons with research elements. In a lesson with elements of research, students work out individual teaching techniques that make up research activities. According to the content of the elements of research activity, I use the following types of lessons: lessons on choosing a topic and method of research, on developing the ability to formulate the goal of research, lessons on conducting an experiment, working with information sources, listening to messages, defending abstracts, etc.

Working on the problem of increasing the motivation of students to do homework, somehow, instead of reading paragraphs and answering questions, you can ask them to do practical work at home. Such tasks are very interesting for students, they perform them with pleasure, since the tasks

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are directly related to life, they perform work in comfortable conditions for themselves, at their own pace, fully feeling like researchers.

The system of home research works allows solving a number of tasks that are relevant for modern physics education, such as involving students in research activities, using interdisciplinary connections, developing scientific speech skills and the ability to write reports on the work done, using various devices, competent handling of electrical and other devices, various substances in everyday life. In the process of performing work, independence, responsibility, and accuracy are formed. Thus, this type of activity has become another tool in the formation of key competencies of students.

Extracurricular activities of schoolchildren will only then influence the development of their competencies if it is closely interconnected with the leading activity - educational and cognitive. Therefore, I willingly help students with an increased level of motivation for learning to conduct research on individual objects or phenomena. The product of such interaction is the scientific work of my students, presented at scientific and practical conferences of various levels and, as a rule, highly appreciated by experts.

Information technology is an integral part of modern life. Any teacher interested in improving their professional skills, regardless of the subject taught, must have a high information culture (be able to extract information from various sources, process it, be able to use computer equipment and accessories for it, work with popular computer programs, be able to use Internet resources).), and most importantly - to teach this to children.

In the lessons under the guidance of a teacher, schoolchildren can learn how to use computer technology for educational purposes for the comprehensive development of their intellect, master the methods of obtaining information to solve educational and subsequently production problems, and acquire skills that will help them continue their education throughout their lives.

Therefore, when teaching physics in the classroom, the formation of information competence of students occupies one of the leading places.

I use educational multimedia products in my lessons. But, I turn to them only in cases where they provide a higher level of the educational process compared to other methods. The student can use computer programs in the preparation of speeches, reports, creative works. What they are happy to do.

An important part of the formation of information competence of students is the ability to use Internet information resources. many colleagues may disagree, citing the fact that in this situation our children get used to simply taking what is ready, without comprehending the material, without applying their own labor to the creation of educational work. everyone is faced with a situation where students brought finished work done in a manner unusual for them. What to do? To prove that the work was not done independently? Forbid to use the Internet? But most of the guys choose to prepare information from the global network as their homework. The way out of the situation is to tell the children about the rules for working with Internet information, which all teachers use too.

Let not many of my graduates connect their lives with professions based on the knowledge of physics. The main thing is that the knowledge gained in my lessons will help them in everyday and professional life. if a student knows how to work in a team, find the truth, plan the result and evaluate it, accurately formulate his thoughts, express himself, find any information, he will be successful in the future.

Work towards the formation of competencies should be continued. There are opportunities for improvement in the use of research technology in the classroom and outside it, further study and application of psychological and pedagogical tools is necessary.

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