

DEVELOPMENT OF EXPERIMENTAL COMPETENCE OF A FUTURE PHYSICS

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Аннотация

В статье показано развитие экспериментальной компетентности учителя физики путем модернизации структуры проведения лабораторных работ для усовершенствования качества обучения.

Ключевые слова

занятие, модернизация, применение, учитель физики, формирования, образования, показатель качество, компетентность, будущих учителя, степень, экспериментальное исследования.

Summary

The article shows the development of experimental competence of a physics teacher by modernizing the structure of laboratory work to improve the quality of

Keywords

occupation, modernization, application, teacher of physics, formation, education, quality indicator, competence, future teachers, degree, experimental research.

At the present time, the improvement of the competence of the future physics teacher occupies a special place among scientists and methodologists- teachers. The study of the experimental competence of a future physics teacher plays a special role in the training of future specialists.

The development of experimental competence is largely a factor, especially the conduct of laboratory work in physics. We have been conducting pedagogical research at the department for several years on the modernization of laboratory work in physics aimed at improving the competence of future physics teachers. In this regard, based on many years of experience, a methodology has been developed. improvements in the competence of a physics teacher and a

modernized model of laboratory work, which is based on an innovative approach to the educational process in the preparation of future physics teachers.

In our opinion, the development of experimental competence and the competence system included in its structure means the transition to high-quality content and technologies of education.

Competence means such a level and type of professional readiness that provides an effective solution to professional tasks in problem conditions of varying complexity associated with a lack of information and time, resources, knowledge about cause-and-effect relationships that are necessary for improvisation in nonstandard situations.

It is of great interest when preparing future physics teachers in pedagogical universities to consider some questions about changing the structure of laboratory work, which, when improved, gives an additional impetus.

When performing laboratory work in physics, forming the competence of the teacher, we pay attention to the content and conduct of laboratory work, which gives a professional orientation of training. In our pedagogical research, it turned out that the competence of a future physics teacher depends on the complex nature that needs to be taken into account. Our research has shown that the main place in this process is the acquisition of a sufficient level of knowledge and experimental skills in the specialty. In particular, a good knowledge of the dynamic and statistical laws used in physics form the basis of classical and modern physics, this is shown in Figure 1.(General and professional competence of a physics teacher)

As can be seen from Figure 1, which shows that it is advisable to divide the competence of a physics teacher into general and professional components. In turn, they can be characterized by the studied disciplines into components as shown in the figure.

Although this issue has been solved from a scientific point of view, the statistical method is still not used in teaching physics at the required level in the system of general and secondary special education, which negatively affects the readiness of the future physics teacher. Although this pattern is currently used in all fields of science.

The requirements for the methodical training of a physics teacher determine his competitive level of special and professional training, therefore it is considered an important factor. The experimental competence of the future physics teacher

is directly related to the modernization of laboratory work. To achieve this goal, the following conditions are necessary:

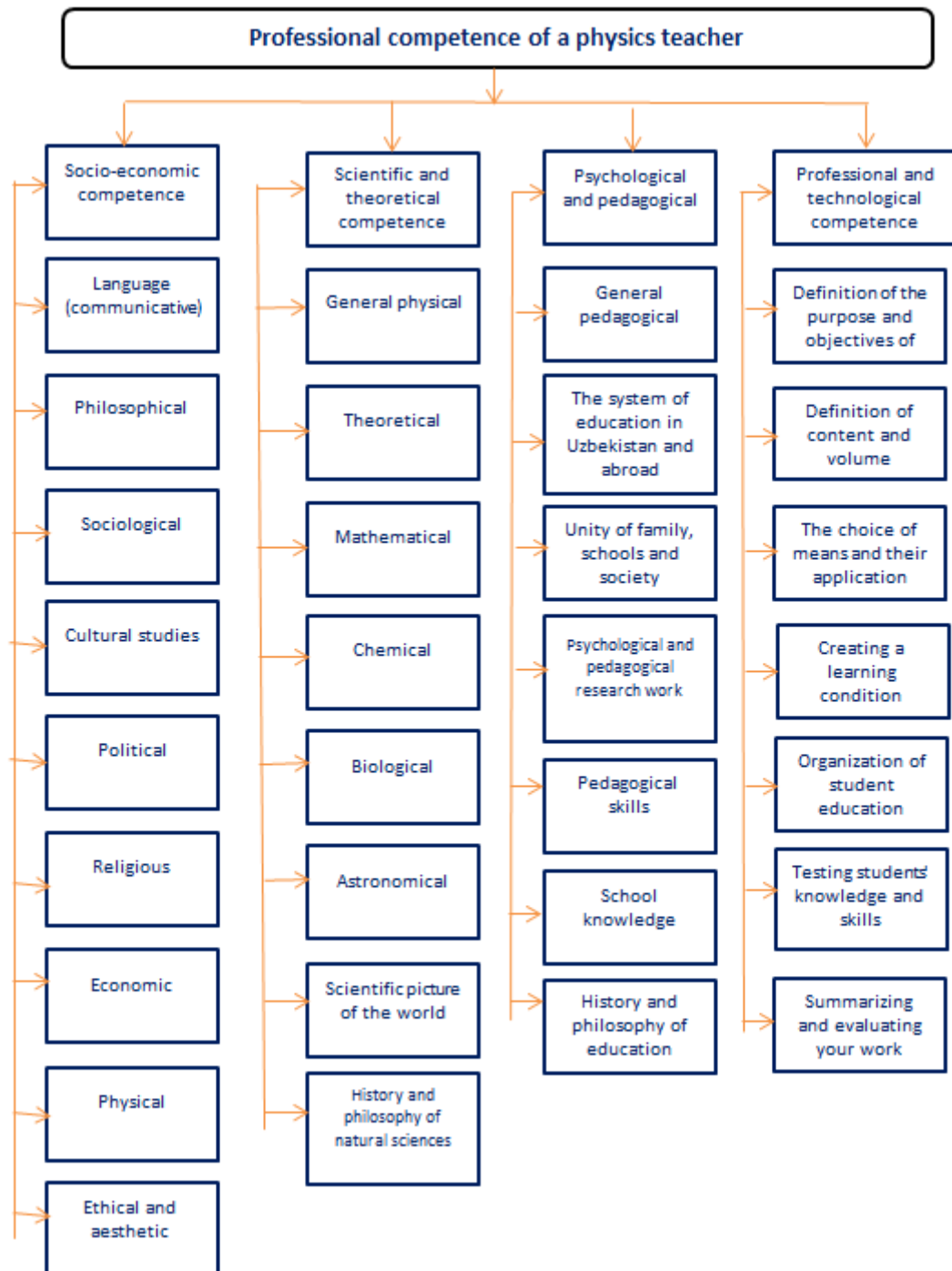
1. Must be a good experimenter

2. Innovator of physical devices

3. Be able to use information and communication technologies (ICT) well, speaks a foreign language.

4. Manage programming with a computer

Many methodologists have been and are doing a lot of work on solving this scientific and methodological problem. It should be borne in mind that the entire teaching staff of all departments and faculties of pedagogical universities, where future physics teachers are being trained, are responsible for solving this urgent problem.[1,2,3,4,5,6,7,8].



Here you can specify two reasons for the increasing requirements for the content of methodical training of a physics teacher:

1. The increase in the scientific level of physics courses in secondary schools, academic lyceums, which is associated with the development of physical science and technology.
2. The second reason is related to the organization and conduct of independent work of students, which will lead to an increase in their knowledge acquisition

activities. This complicates the activities of teachers, as well as increases the requirements for their methodological knowledge and skills. [6,7,8].

The gradual increase in the tasks of a physics teacher requires a revision of the system of requirements imposed by their professional training, which constitute the content of their professional activity. A physics teacher not only teaches students the basics of physics, but is also considered a specialist in its polytechnic and professional orientation.

In this process, he develops students' creative thinking, abilities, scientific worldview that help to form

the necessary competence and become a full-fledged member of society.

To develop the experimental competence of a future physics teacher, it is necessary to take into account the above factors that lead to the improvement of a future physics teacher

LITERATURE:

1. Joraev M. Akhmedov A. Modernization of the competence of future physics teachers. M.// Physics at school No. 7-2015-pp.20-23.
2. Akhmedov A, Joraev M, Kamolov R. Modernization of laboratory work in physics in higher pedagogical universities. Monograph of the doctoral dissertation// -Saarbruckent: LambertAkademikPublishing-2015.-49c
3. Akhmedov A, Joraev M, Ochilov Sh. Development of the competence of a physics teacher and ways to improve it Pedagogy&Psychology Theory and Practice International scientific journal No.6(8), 2016. pp. 14-16.Volgograd
4. [А.А Ахмедов, Д.И Камолова - Индивидуальный педагогический подход к выполнению лабораторных работ по оптике](#) Педагогика и современность, 2015
5. А Ахмедов, М Джораев, И Камолов - [Модернизация лабораторных работ по физике в высших педагогических вузах. Монография докторской диссертации](#) - Монография докторский диссертации. LAMBERT, 2015
6. М Джораев, АА Ахмедов -[Модернизация компетентности будущего учителя физики.](#) Физика в школе, 2015
7. А.А Ахмедов, Э.А Кудратов, Д.М Холов -[Инновационная технологии современных лабораторных работ по физике](#) Инновационные технологии в науке и образовании, 2016
8. [Ахат Ахрорович Ахмедов, Ихтиёр Рамазонович Камолов, Жалил Маликевич Абдуллаев Развитие научно-технического прогресса и его влияние](#)

[на формирование учащихся](#) Новые технологии в образовании, 2014 Новые технологии в образовании, 2014

АА Ахмедов, БФ Избасаров, ИР Камолов -[Формирование и развитие экспериментальной компетентности-перспектива будущего учителя физики.](#) Евразийское Научное Объединение, 2020

АА Ахмедов, БК Хайдаров [Инновационная технология при выполнении современных лабораторных работ по физике.](#) International scientific review, 2016

6.